

SMITHSONIAN ZooGOER

For members of **FRIENDS OF THE NATIONAL ZOO**

MAY | JUNE | 2011

Flocking Together

Living in
groups helps
all sorts
of animals
thrive.

- » The Science
of Hormones
- » Behind the Scenes
of ZooFari
- » Face-to-Fin
With Piranhas



Good day.

Great day.

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SMITHSONIAN Zoogoer



is the dedicated partner of the Smithsonian's National Zoological Park. FONZ provides exciting and enriching experiences to connect people with wildlife. Together with the Zoo, FONZ is building a society committed to restoring an endangered natural world. Formed in 1958, FONZ was one of the first conservation organizations in the nation's capital.

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On the cover: Flamingos are among the many animals that live in groups. PHOTO BY MEGHAN MURPHY/NZP

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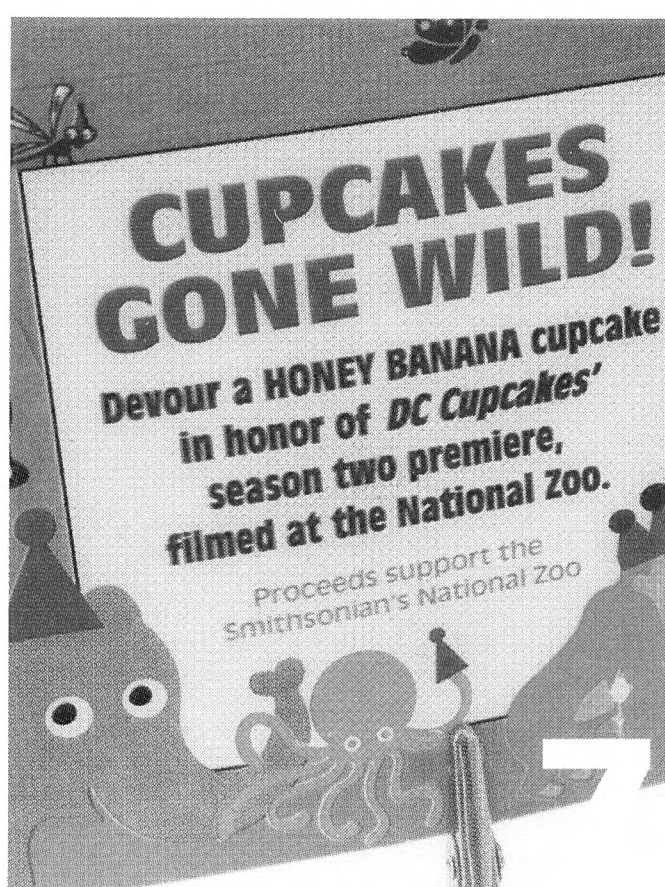


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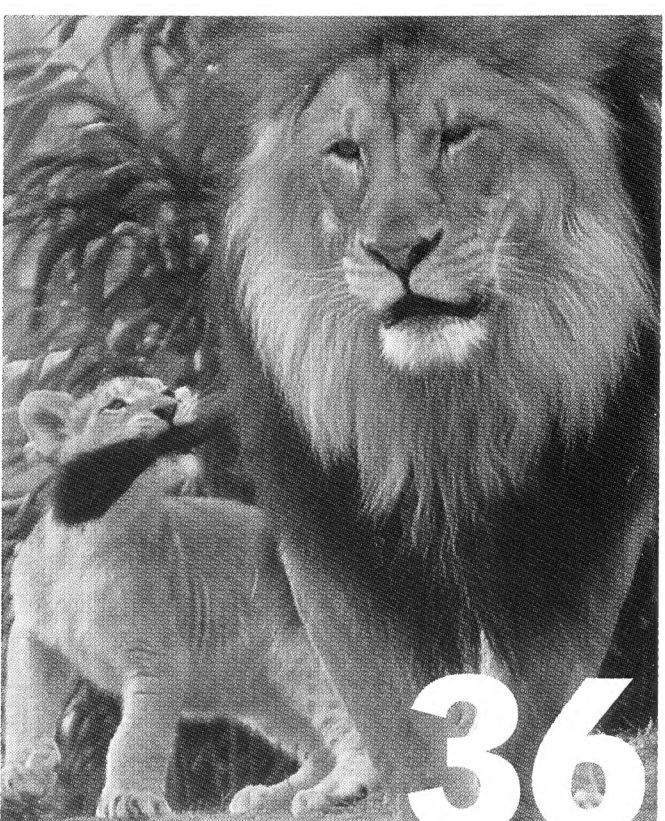
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JESSIE COHEN/NZP



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COMPANIONS IN CONSERVATION

“FOOD IS OUR COMMON GROUND, A UNIVERSAL EXPERIENCE,” wrote noted chef and author James Beard.

Food unites people, whether with a quick coffee break or an elaborate dinner. This is more than just a recent trend. In fact, the word *companion* is derived from the Latin words meaning “with bread.”

As often happens at the Zoo, families and groups of friends pause during their visit for a meal or snack, taking this time to rest and share their experiences about the animals. People bond with each other about their favorite animal or the cute antics of the Zoo’s wonderful inhabitants.

Our Zoo animals also bond over food, perhaps not with each other, but with the animal keepers whose arrival with their meals or enrichment treats signals an exciting part of their day.

One of the best enrichment treats that people could ever imagine is ZooFari—a great night devoted to wonderful food and wine with an amazing banquet of choices offered by more than a hundred of the area’s top restaurants and vintners. It is a food-lover’s best dream: an evening in beautiful May, strolling down Olmsted Walk with friends and family while enjoying a gourmet palate of small elegant treats, featuring hors d’oeuvres, entrees, desserts, and wine. Pinch yourself, and you will find that you really are awake and not just dreaming.

ZooFari is our major annual fundraiser—providing revenue for the Zoo while entertaining our visitors. (Be sure to read the fascinating story of ZooFari’s evolution on p. 22.) In addition to the incredible cuisine, ZooFari offers everyone attending a fabulous silent auction, live music, sweepstakes, top chef encounters, and a cake-decorating competition.

Patrons who purchase specially priced Lion Lounge tickets, moreover, will be able to view our enormously popular and quickly growing lion cubs from a special area overlooking the Zoo’s lion exhibit. Lion Lounge guests will also have access to special seating, a private bar, and exclusive desserts. For more information, please check the website (address below).

We hope you attend ZooFari on May 19, knowing you are directly supporting the Zoo’s mission. Your support will ensure that the progress we have made in advancing education, animal care, and conservation science will continue. And in the best tradition of a food event, be sure to bring a friend.

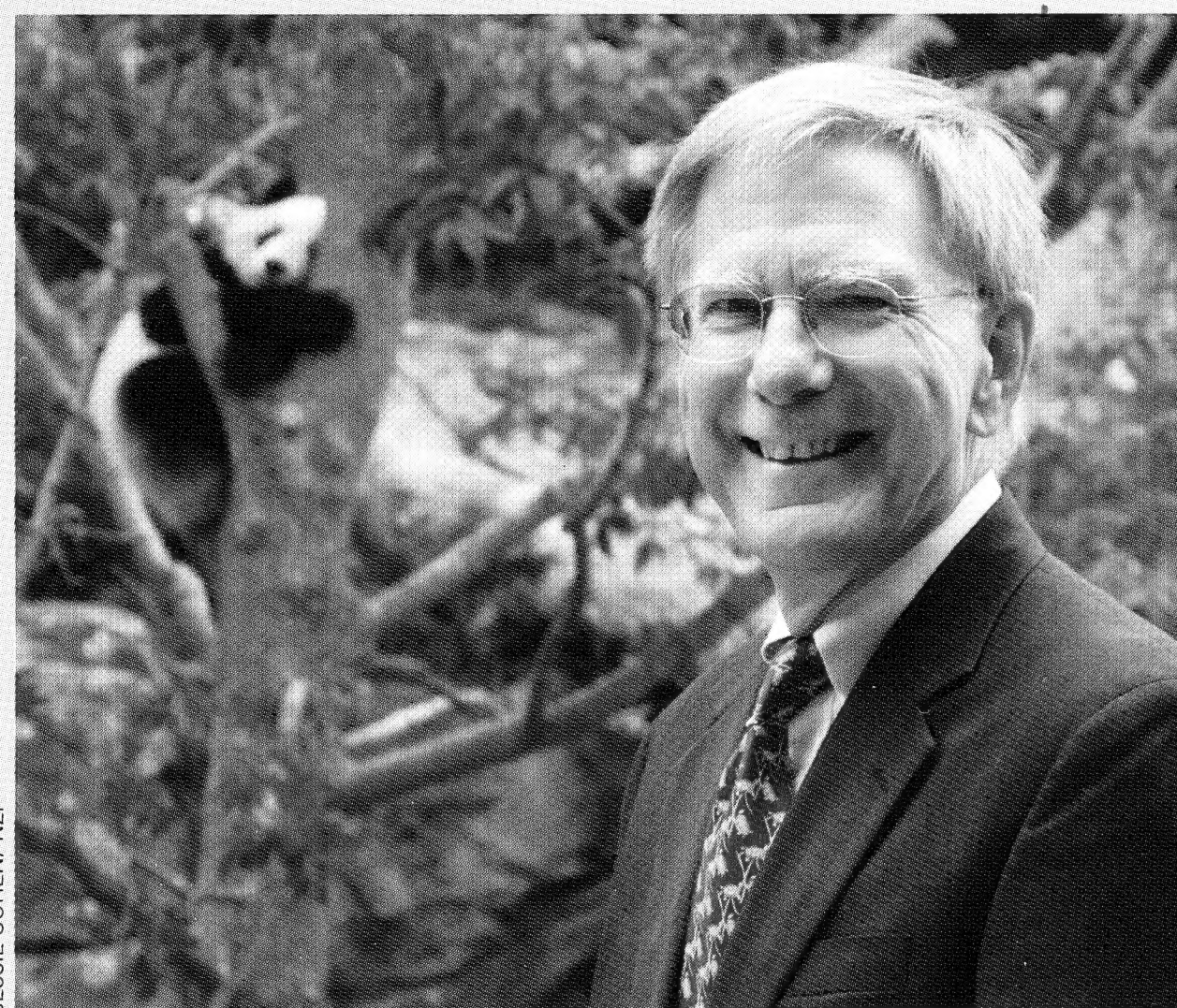
For more details and ticket information, please visit fonz.org/zoofari.htm. Thank you.

Sincerely,



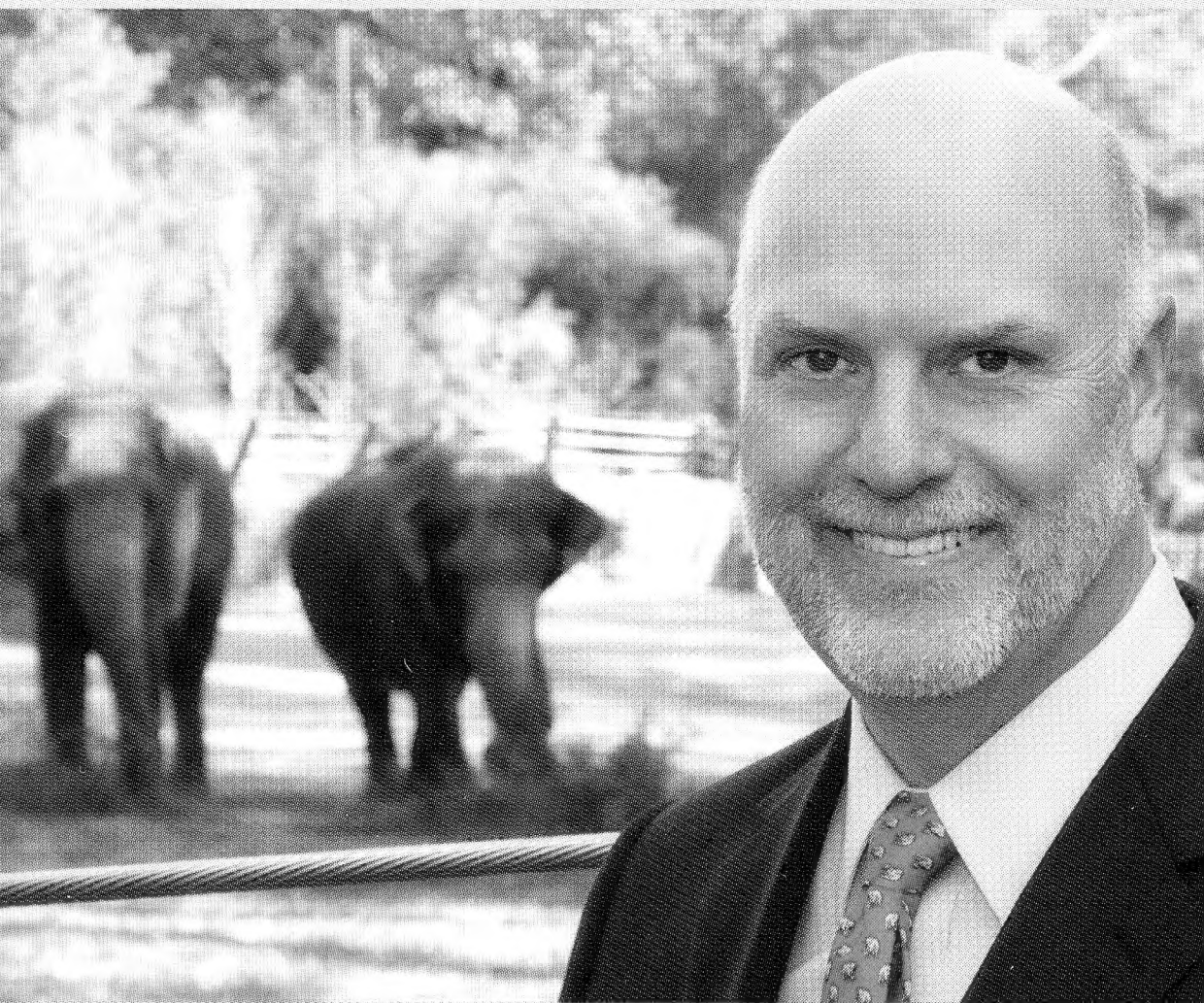
Bob Lamb

Executive Director, Friends of the National Zoo



JESSIE COHEN/NZP

GENERATIONS



MEHGAN MURPHY/NZP

IN 2005, JOGAYLE HOWARD DID WHAT NO ONE HAD DONE BEFORE: SHE GOT MEI XIANG PREGNANT.

A reproductive expert known fondly as the “Sperm Queen,” Howard conducted the artificial insemination that led to the birth of Tai Shan, the one panda cub in National Zoo history—so far—to grow into adulthood. That alone earned her a place in the history books. Yet that was only one of countless achievements in her three decades at the Zoo. She helped breed a variety of endangered species, including clouded leopards, black-footed ferrets, and cheetahs. Howard’s work met one of the key challenges of 21st-century zoo keeping: creating new generations of imperiled animals. Her death this past March was a huge loss for the Zoo and its research arm, the Smithsonian Conservation Biology Institute (SCBI).

The press release announcing Howard’s death said, “Her legacy lives on in the survival of the species that she studied,” and that is certainly true. She leaves another legacy as well, however. That is the knowledge she contributed to the field of conservation bi-

ology. During her storied career, Howard authored more than 100 peer-reviewed publications and some 20 book chapters. She also, like all Smithsonian scientists, took an enthusiastic hand in training the next generation of scientists.

That training mission is one of the hallmarks of the Zoo and SCBI. At any given moment, more than 100 scientists and their trainees are at work at Rock Creek and in Front Royal, exploring issues in animal behavior and husbandry as well as ecology and wildlife conservation. Over the past three decades, SCBI has conducted training courses in Front Royal and at 29 locations around the globe. Some 5,000 people, from 85 countries, have taken part in these programs. That’s not counting the myriad undergrads, graduate students, research fellows, and zoo professionals for whom our scientists have acted as mentors and who have moved on to leadership roles in zoos, wildlife organizations, and universities.

In recent years, we’ve embarked on an exciting new venture with George Mason University, launching the Smithsonian-Mason Global Conservation Studies Program. We offer a unique semester-long experience to undergraduates, who have the opportunity to live and study in Front Royal, drawing on the talents and expertise of both SCBI scientists and Mason faculty. We also continue our long tradition of offering intensive, two-week training courses for professionals, with the new option of taking the courses for graduate-level credit.

To expand our ability to train new generations of scientists, we have begun an ambitious construction program in Front Royal. We’re building 9,000 square feet of classrooms and labs, 4,000 square feet of offices, housing for 120 people, a dining room, and common areas. This new center will include both creative reuse of historic structures and Earth-friendly features such as geothermal heating and a green roof. To contribute to this vital effort, please contact scbifuture@si.edu.

Thirty years ago, JoGayle Howard came to the Zoo, a young scientist eager to learn. Countless others have followed in her footsteps. They may not all go on to spectacular careers, but each new learner is part of the Zoo’s proud tradition—equipping generations of scientists to study and benefit generations of wildlife.

Sincerely,

Dennis Kelly

Director, Smithsonian’s National Zoological Park

A Fresh Look for the Great Cats

After a year of planning and research, designing and redesigning, the Great Cats exhibit is receiving a fresh new look. It includes new signs and three new interactive alcoves where visitors can explore the mysterious lives of lions and tigers.

"It's a really exciting project for us," says exhibit designer Cheryl Braunstein. "There are a lot of touchable pieces." They include a boomer ball: a huge, nearly indestructible ball that is a favorite of the great cats. The scratches and teeth marks are impressive.

The refreshed exhibit aims to reach other senses too. Recordings will enable visitors to hear roars and other vocalizations. And on an artificial tree branch, experts have re-created the scent of a tiger. "The great thing that I've learned is that the tiger smell is not that unpleasant," Braunstein explains.

Throughout the exhibit is a haunting subtext: Great cat numbers are dwindling. African lions are classified by the International Union for Conservation of Nature as vulnerable; tigers are endangered. Indeed, only about 3,200 tigers remain in the wild. Crashing populations owe a lot to human activities, particularly poaching and habitat destruction.

"These animals have a pretty rough life, even if you take humans out of the picture," explains Braunstein. "Cubs have a pretty low survival rate." Male tigers and lions will kill cubs that they have not sired, and it is

increasingly difficult for females to find enough food in shrinking habitat ranges.

Yet visitors need not leave hopeless; there are ways each visitor can help save great cats while doing mundane things like grocery shopping. A "streetscape" with mock storefronts will teach visitors about products they should avoid purchasing, and what organizations they can support to help to give lions and tigers a fighting chance.

Eavesdrop on Our Cubs

Keepers recently recorded some of the noises they hear every day as they tend the lion cubs. The cubs produce varied vocalizations for different situations. Visit fonz.org/cubsounds.htm to hear what it sounds like when a cub is separated from its mother or siblings; when the lions are reunited after eating; and when a cub is trying to intimidate its own reflection.



Uncle Beazley's Makeover

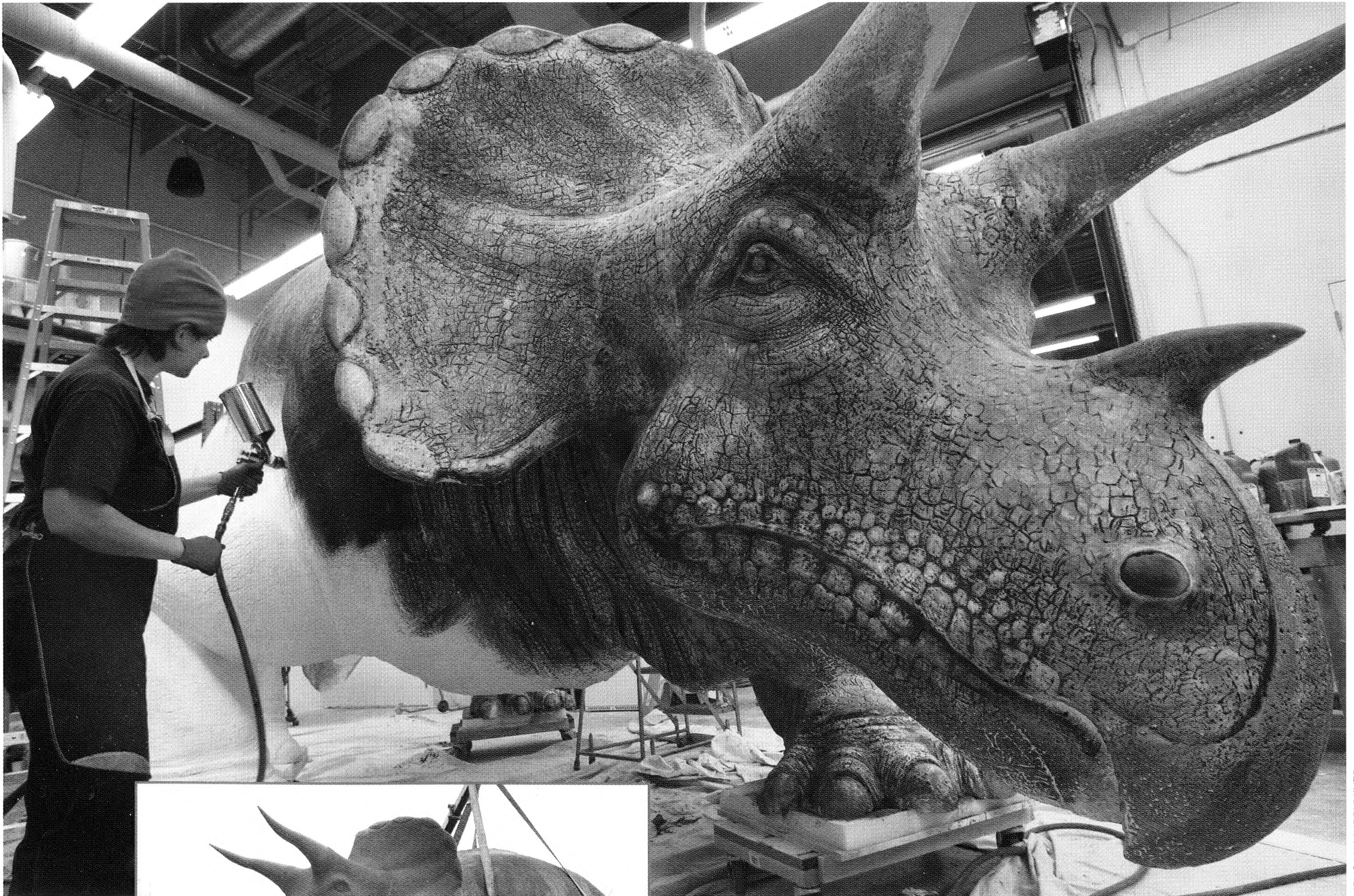
The Zoo's statue of Uncle Beazley, a life-size triceratops, made a temporary migration to the Smithsonian's Office of Exhibits Central in Maryland in late February. The dinosaur had some cracks and holes that needed repairing, and it received a fresh coat of UV-resistant paint

so it can continue to live happily outdoors at the Zoo.

Uncle Beazley is named after a character in the children's book *The Enormous Egg*. Created by artist Louis Paul Jonas in 1967, he was later donated to the Smithsonian thanks to the Sinclair Company. Uncle Beazley has also been displayed at the

Anacostia Neighborhood Museum and the National Museum of Natural History, but he returned to the Zoo permanently in 1994.

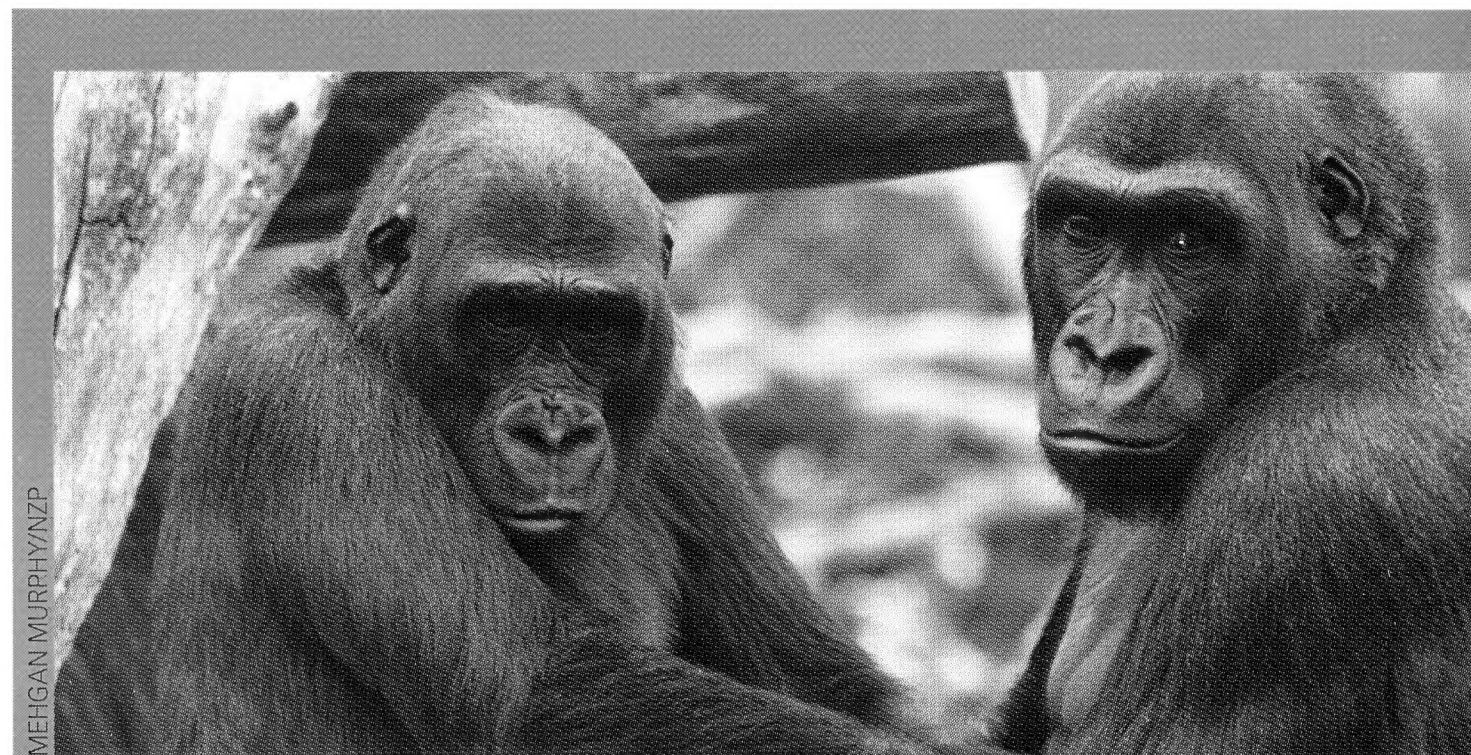
The restoration and maintenance of Uncle Beazley and his garden was made possible by a generous donation from Mara Strock in memory of her parents, Herman and Evelyn Strock.



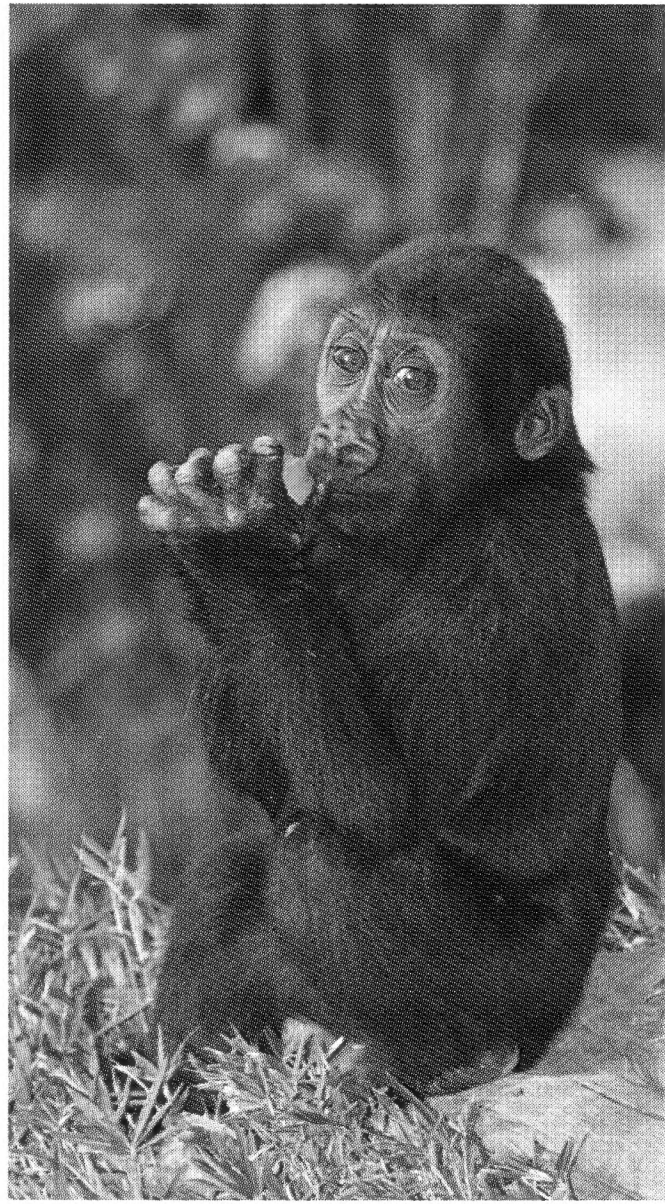
MEGHAN MURPHY/NZP



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MEGHAN MURPHY/NZP



MEHGAN MURPHY/NZP

Kibibi's First Checkup

Kibibi, the Zoo's two-year-old western lowland gorilla, had her first veterinary exam on March 9. She was anesthetized so the veterinary team could collect samples and get a closer look at her. She received her first vaccinations, and the veterinary team drew blood for a baseline health assessment. They also took a radiograph.

Kibibi's teeth and eyes were healthy, and she weighed 21 pounds. The veterinary team was happy with her growth and will continue to give her regular checkups to track her progress.

Taking It Like a Tiger

Guntur, the younger of the Zoo's two Sumatran tigers, marked a major milestone in his training with keeper Leigh Pitsko. The five-year-old male is now able to hold still for a voluntary vaccination. Pitsko has been working with Guntur since he was only a few months old. Before he would hold still for a vaccination, Guntur learned to lie parallel to the front of his indoor enclosure and lean on it. After two months of intense work, Guntur voluntarily got into the right position for vaccinations. Since his first voluntary vaccine, Guntur has even allowed Pitsko to draw blood samples from his tail.



MEHGAN MURPHY/NZP

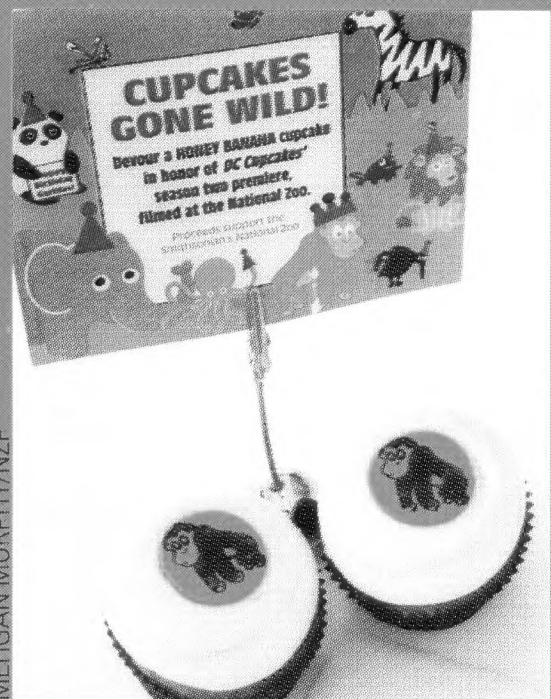


MEHGAN MURPHY/NZP

Anteater Antics

The Zoo's baby giant anteater, Pablo, had his first chance to explore his yard in mid-February. The pup and his mother, Maripi, went outside for some snacks and to enjoy the unseasonably warm weather. Pablo had to adjust to being outside with mom. He promptly fell off Maripi's back when they entered the yard. Instead of sounding an alarm call so she would notice that he was not clinging onto her back as he should have been, Pablo scrambled after her in the yard. He finally caught up with her when she stopped for a snack strategically placed in her yard.

Pablo then seized the chance to get back into position and scrambled onto Maripi's back. It seems to keeper Marie Magnuson that he has learned his lesson about not hanging on tightly enough out in the yard.



MEHGAN MURPHY/NZP



KARIN KORPOWSKI-GALLO

Birthday Bounty

Kojo and Kwame, two of the Zoo's western lowland gorillas, celebrated their birthdays in style. Georgetown Cupcake, a happening bakery, created a honey-banana treat called "Gone Bananas!" Its sales raised \$5,000 for the Zoo.

That's not all. The bakery also assembled hundreds of cupcakes into a gorilla sculpture full of ape-friendly ingredients (specified by the Zoo commissary) for the birthday boys to feast on. Their repast was captured by the TLC show *DC Cupcakes* and formed the centerpiece of its season premiere on February 25.

Mark Your Calendar

- May 13 **Guppy Gala**
See ad on page 28.
- May 14 **Monthly Bird Walk**
Join bird keeper Debra Talbott for an hour-long birding walk through the Zoo. Tour departs from the Bird House at 9 a.m.
- May 19 **ZooFari**
See ad on inside back cover.
- May 21 **Bird Fest 2011**
Learn more at nationalzoo.si.edu/goto/birdfest.
- June 11 **Monthly Bird Walk**
Tour departs the Bird House at 9 a.m.
- July 14 **Brew at the Zoo**
Support wildlife conservation by sampling local beers. Learn more at fonz.org/brew.htm.

Join the Smithsonian Migratory Bird Club

Exclusive for FONZ members!

Want to support the Smithsonian Migratory Bird Center's research and conservation around the world?

Then join the Smithsonian Migratory Bird Club. Members get exclusive benefits, including invitations to lectures and events, local and regional bird walks and field trips with Smithsonian ornithologists, an information-packed newsletter, migratory-bird-themed wallpaper, and a Bird Friendly Coffee baseball cap. Join today at nationalzoo.si.edu/scbi/migratorybirds/club/ or contact the FONZ membership department for more information: 202.633.0296.

In Memoriam JoGayle Howard



MEHGAN MURPHY/NZP

One of the National Zoo's most renowned scientists, JoGayle Howard, died on Friday, March 4, after battling cancer. Howard dedicated her life to the conservation of endangered species. She came to the Zoo in 1980 as a postdoctoral fellow. In her 30 years at the Zoo, Howard studied a variety of threatened species, engineering groundbreaking reproductive strategies to bolster captive animal populations. Her tireless work earned her the nickname, which she relished, of "Sperm Queen."

Howard was instrumental in bringing black-footed ferrets back from virtual extinction and developing husbandry practices that led to more successes in breeding clouded leopards in captivity. A pioneer in plumbing the mysteries of giant panda reproductive biology, she artificially inseminated Mei Xiang in 2005, leading to the birth of Tai Shan, the Zoo's only surviving giant panda cub.

JoGayle Howard's tremendous career is examined in a recent Smithsonian Channel documentary, *Nature's Matchmaker*.

Visit fonz.org/howard.htm if you'd like to learn more or make a contribution in her memory.



MEHGAN MURPHY/NZP

Cheetah Cubs Go Outside

The cheetah cubs born at the Smithsonian Conservation Biology Institute in Front Royal had their first glimpse of the outside world on February 12. The two cubs were let out into the yard of their enclosure along with Zazi, their mother. The two cubs frolicked in the yard happily for most of the day until they wore themselves out.

A WILD EDUCATION

Sarah Reisberg's education didn't end when she graduated from college with a degree in psychology. It continues here at the Smithsonian's National Zoo, where Reisberg is an intern at the Great Ape House. She's studying the Zoo's orangutans and its troop of western lowland gorillas. "I love it," says Reisberg of her internship. "I think my favorite part is just getting to know the individual animals. And a lot of them are just so funny."

Two of the personalities Reisberg watches and studies each day are the Zoo's blackback male gorillas, Kwame and Kojo. Both are now approaching the age when they would leave the troop to make their own way in the wild. That departure would be preceded by some aggression shown toward Baraka, the Zoo's 375-pound silverback male.

So far, Reisberg says that she is not seeing any kind of behavior that signals that the younger males should be removed. "There's very little aggression between them and Baraka," explains Reisberg. "Kwame is a very good blackback; he's very respectful." She says that Kwame never goes looking for trouble, but sometimes it finds him in the form of his younger brother, Kojo. The younger male is much more rambunctious than his calm older brother and likes to stir up some excitement in the troop. "A lot of it is play-related," says Reisberg of Kojo's antics. "But from what I'm seeing they are not going to have to be separated for a while."

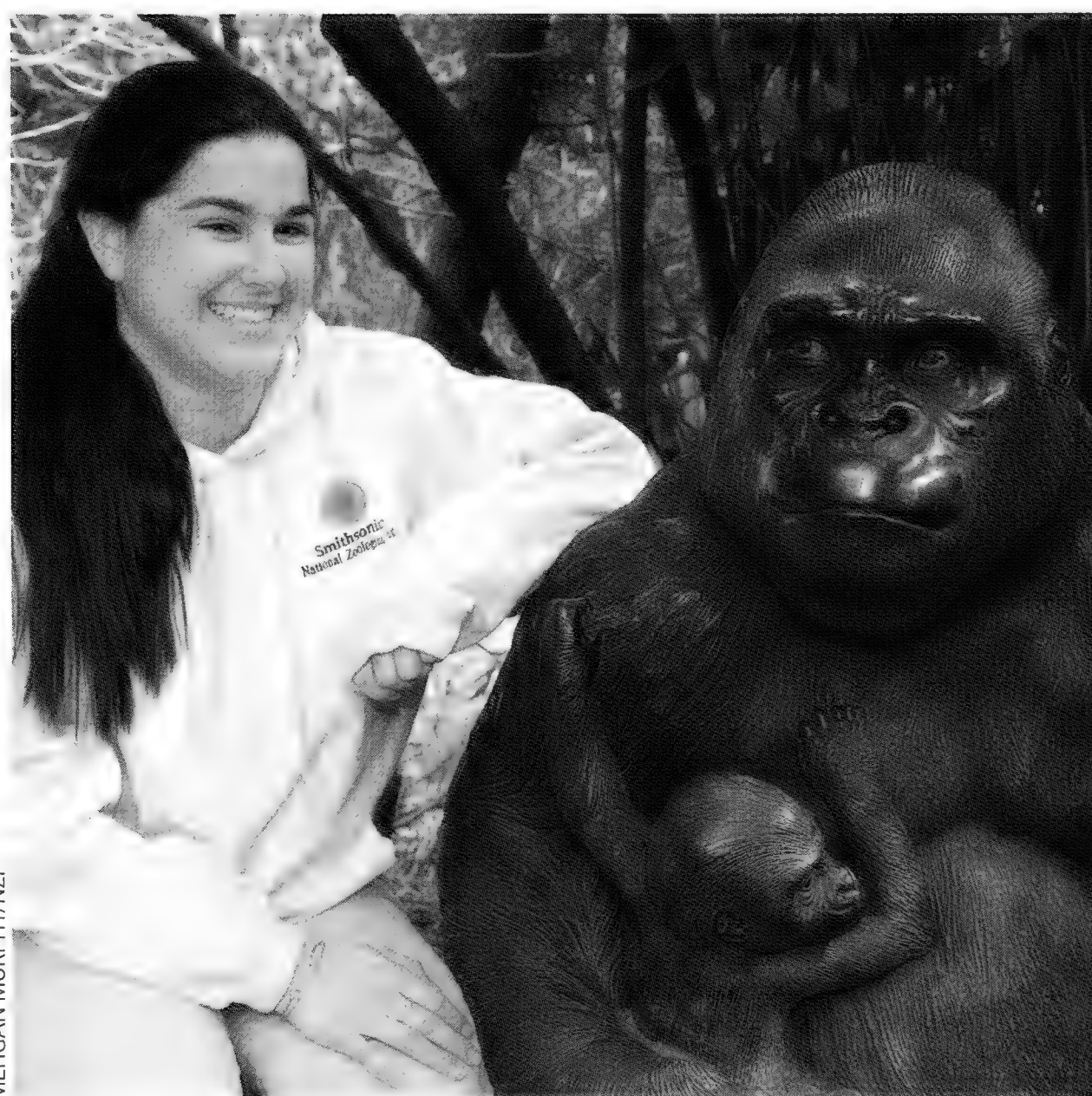
When she does not have both eyes glued to Kwame and Kojo, Reisberg helps think of ways to entertain the entire troop. She gives them enrichment items, which are brain-stimulating toys, to keep them on their toes. "The apes especially need enrichment two to three times per day," Reisberg explains. Thinking of new activities is as much of a brain exercise for keepers as the toys are for the gorillas. "It needs to be something different each day so they don't get bored." A calendar of enrichment items created by keepers gives Reisberg some direction in what to give the gorillas, but she thinks of new ways to make things, like a bamboo shoot, interesting.

Across the Great Ape House, the orangutans are just as clever as the gorillas. "They like testing the keepers," says Reisberg. "So you always have to watch them, because they are always watching you." Reisberg is finishing a study (started by a previous intern) on the female orangutans at the Zoo. "We have a semi-flexible social group," she says.

The apes' flexibility is enhanced by the O Line, a set of overhead wires that run between the Great Ape House and Think Tank. Apes zip along the wires as if they were branches or vines. "Our system is much more like the wild," Reisberg explains, "because orangutans travel alone and then meet up in the wild rather than staying in stable social groups."

Reisberg's research gives her the chance to get to know all of the great apes' personalities while researching their behaviors. "It's wonderful to have that hands-on experience," she says. That experience, she hopes, will help her to one day be a zoo keeper herself.

MEGHAN MURPHY/NZP



» In each issue of *Smithsonian Zoogoer*, this "How Do You Zoo?" page will showcase someone who works at the National Zoo. Learn more about careers at the Zoo by visiting the How Do You Zoo? exhibit at the Zoo's Visitor Center. Children ages five to ten can get a hands-on feel for different jobs at the Zoo. The exhibit is open most weekends from 10 a.m. to 4 p.m.

— DEVIN MURPHY

g

etting animals to behave naturally is one of the great challenges of modern zoo keeping. Keepers, scientists, and curators work hard to encourage wild behaviors in a captive setting. What that takes can vary by animal. It may mean finding just the right diet or adjusting the layout of an animal's enclosure.

Then again, sometimes what an animal needs most is very simple—other animals. Many species can't behave naturally alone; they need a group. It may be a mated pair, an extended family, or a group of unrelated animals. In any case, each group has its own complex dynamics. Small cues—a call here, a body movement there—reinforce the dynamics and, if understood, give keepers a glimpse into the animals' social network.

Birds That Bicker

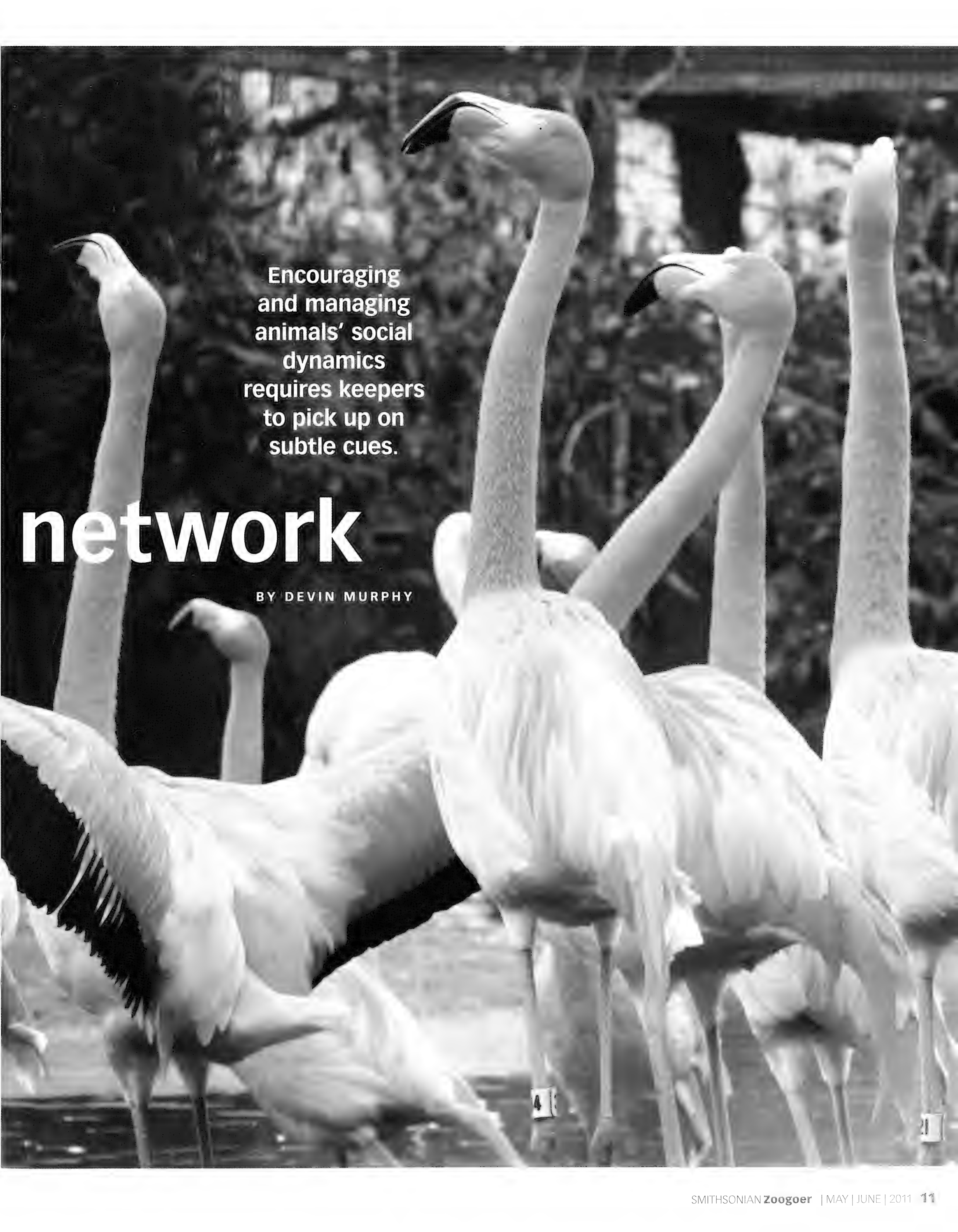
A familiar social group in the animal world is a mated pair. A mated pair has made a commitment to each other (for at least a breeding season) to work together to raise offspring. The Zoo's flamingos live in a flock of 62 squabbling mated pairs. The birds begin to sidle up to each other in late December or early January.

"Usually around January, the whole flock starts displaying," explains biologist Sara Hallager. "In that group display, you also have pairs." Keepers can identify pairs through their body language. Birds that

the social



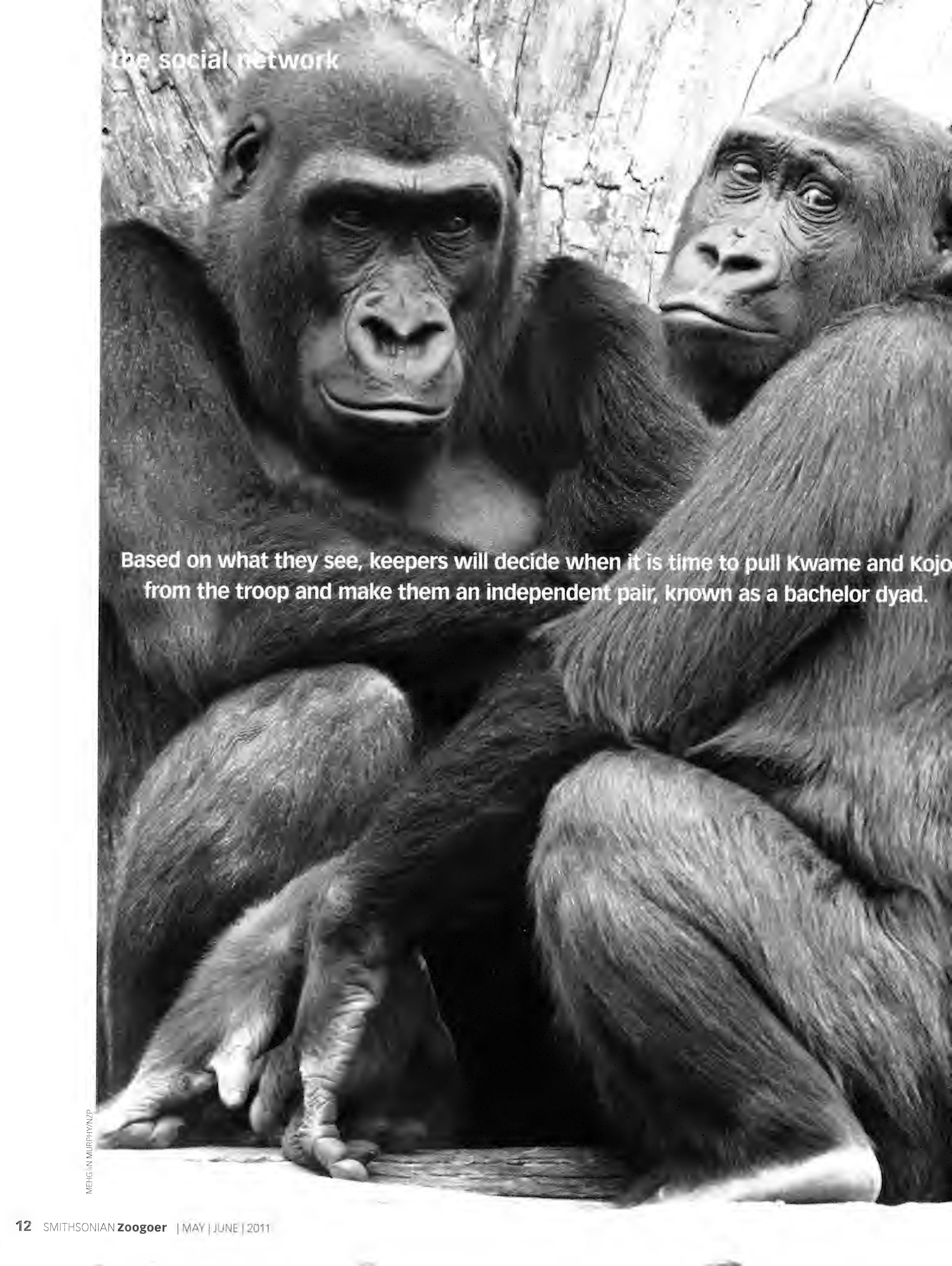
MEGHAN MURPHY/NZP



Encouraging
and managing
animals' social
dynamics
requires keepers
to pick up on
subtle cues.

network

BY DEVIN MURPHY



the social network

Based on what they see, keepers will decide when it is time to pull Kwame and Kojo from the troop and make them an independent pair, known as a bachelor dyad.

MEHG N MURPHY/NZP

FACING PAGE: Kwame and Kojo are the Zoo's blackback male gorillas.
 TOP RIGHT: Baraka is the Zoo's silverback gorilla. He is the leader of the troop.
 BOTTOM RIGHT: Mandara and Kigali are the two adult females in the troop.

are interested in mating with each other in the coming months will stand near each other, feed together, and fend off rival pairs.

Flamingos' social dynamics create an intriguing paradox. The birds need the social interaction of a flock to thrive; however, much of the social interaction within the flock is bickering. "One bird will be peacefully sleeping and another bird will come up and bump it on purpose," says Hallager. She does not have a definite answer for why they fight, but it seems to be part of their nature. One reason may be territoriality within the flock; another may be to assert rank. Bickering seldom gets too heated, so keepers generally refrain from intervening.

Boss Man

The Zoo's troop of western lowland gorillas enjoys a much more stable and peaceful social structure than the flamingos. Baraka, the 19-year-old, 375-pound silverback male, is the imposing figurehead of the group. The five other gorillas defer to him and respect his moods. He settles most disputes and can discipline anyone not behaving acceptably with an intimidating look or body movement.

Despite his imposing nature, however, keepers say Baraka is not hypervigilant. "He doesn't rule with an iron fist," explains keeper Amanda Bania. "He's still kind of growing into his role. But for the most part the group is pretty respectful of him." That may change as the troop's younger males, Kwame and Kojo, begin to mature and become silverbacks themselves.

As the brothers get closer to adulthood, they will begin to challenge Baraka as the silverback of the troop. "The plan is to let them be a troop for as long as they can," explains Bania. "Kwame, our 11-year-old, will probably be the first one to pose some kind of threat to Baraka."



MEHGAN MURPHY/NZP

Keepers are monitoring interactions between Baraka and Kwame and keeping a detailed account of what transpires. They are watching closely to see if either ape shows aggression. Based on what they see, keepers will decide when it is time to pull Kwame and Kojo from the troop and make them an independent pair, known as a bachelor dyad.

Elephant Etiquette

The western lowland gorillas are not the only animals that have to grapple with maturing males. Age shapes the social dynamics of another mammal group at the Zoo: the three Asian elephants. Ambika, Shanthi, and Kandula live as a family spanning three generations on Asia Trail, even though all of them are not related.



MEHGAN MURPHY/NZP



JESSIE COHEN/NZP

Kandula (left), Shanthi (center), and Ambika (right) make up the Zoo's Asian elephant herd.

At 62 years old, Ambika, a female, is the oldest elephant (and mammal) at the Zoo. Shanthi, another female, is 34. Kandula is the baby of the herd; he is 10. “Ambika and Shanthi are very closely bonded,” explains keeper Marie Galloway. The two females have a relationship more like equals rather than a matriarch and younger female in a herd.

Then there's Kandula. As a maturing elephant, Galloway says, he is “very aggressive and very independent.” In the wild, young bulls usually leave their natal groups around 13, when they begin feeling urges to assert their male dominance. Older bulls then teach them how to behave like an adult.

Galloway explains that ideally the Zoo would have an older bull to show Kandula the ropes of social etiquette and some younger bulls with whom he could expend his extra testosterone-fueled energy. In the meantime, while a bigger herd complete with an older male role model is still a work in progress, Ambika has taken over as Kandula's etiquette teacher.

“Ambika has very little tolerance for Kandula,” explains Galloway. But her impatience is not a bad thing. “Hopefully,

that will help him to learn to behave more socially appropriately with other elephants.” Ambika has no qualms about telling Kandula it is time to settle down. If his bull behavior is annoying her, she has several direct ways to communicate her displeasure—a shove, a kick, or a mad dash in his direction.

Scientists are still learning about Asian elephant social behavior. Much more is known about African elephants, which live in matriarchal herds. It is possible that Asian elephants do not live in herds with such a strict social structure. “We might know more about them physically, but we know less about them behaviorally,” explains Galloway about Asian elephants. “As we learn more, I believe we are going to find more and more differences.”

Companionship

Older females living with younger males is also a pattern among the Zoo's white-cheeked gibbons. Longtime residents Mae and Muneca are the Zoo's two geriatric female gibbons. Mae is 41, and Muneca is 44. Even though they are too old to breed, it is still important for them to have social

bonds. So they are housed with much younger male companions.

Mae is housed with Sydney, a 12 year-old very playful male. His rambunctious nature does not bother the aging Mae. Primate curator Lisa Stevens describes him as more independent than his fellow gibbons—and at times a bit of a pest. Mae does not put Sydney in his place when he wants to play rough. “I think he gets away with a lot because he's living with a geriatric female,” says Stevens. The two companions get along well, and age is not a problem, but Sydney may have to have a crash course in social etiquette if he is placed with a younger breeding female.

Muneca has mesh access to Mickey, a 25-year-old male. This means that the two apes can interact and even touch through a mesh door, giving them the social interaction they need. Yet they remain separated. This is because of Mickey's shadowed past, a reminder that wild animal behavior is never totally predictable.

Mickey originally came to the Zoo as a potential mate for Siam, an older gibbon who had lost her mate—and thus much of her social interaction. “He came in, and



we introduced them, and everything went really well,” says Stevens. “Then one day he jumped on her and inflicted a lethal wound to her neck.” Keepers immediately intervened and separated the two, rushing Siam to the veterinary hospital. Unfortunately, she died of her wound.

Although the attack saddened Stevens and the primate staff, there is still hope that Mickey will become half of a mated pair. (Muneca would not be a suitable mate for him though since she is no longer breeding.).

Bear Personalities

One key lesson of studying animal dynamics is to be wary of generalizations. Take the Zoo’s three sloth bears, for instance. Each has a distinct personality which influences how social the animal is.

Hana, a female, generally prefers to interact very little with Khali (another female), Francois (a male), or her keepers. “She is a very independent bear who likes to spend time alone,” says keeper Mindy Babitz. Hana is more social during the breeding season, when she solicits attention from Francois.

Hana’s solitary nature is not typical of Khali or Francois. “Khali is the most social of the three bears and enjoys spending time interacting with her keepers every day,” says Babitz. Francois is very social and likes to play with other bears. If no one is interested in playing with him, he will turn to his keepers for some attention and entertainment.

Things change during the breeding season. Then, Hana shows more interest in Francois and seeks out his attention. “Hana has been alone all winter, because

she has not shown much positive interest in Francois and has been aggressive towards him when they’ve had the chance to socialize,” says Babitz.

“We are keeping an eye on her behavior, though, since she will start becoming more interested in him and more social the closer we get to breeding season. When we see these positive social behaviors, we’ll start giving her opportunities to interact with Francois, and based on how it goes, we’ll decide if and when to put them together.” Meantime, keepers separate Khali and Francois, who are not a recommended breeding pair.

Living Together

Social networking at the Zoo does not require a Facebook or Twitter account (though some birds do tweet). It takes real face-to-face time and perhaps a Species Survival Plan recommendation. Animals’ behaviors tell keepers when breeding season has arrived, when they would rather be alone, or when they are growing up—which is why keepers go to such great lengths to understand and foster social dynamics. **SZ**

—DEVIN MURPHY *is the editorial intern for Smithsonian Zoogoer.*

Keeping the Peace?

White-cheeked gibbons do not tolerate other gibbons in what they define as their territory. At the Zoo, the two gibbon pairs have visual contact with each other, but they are still kept apart. “You can keep gibbons in close proximity to each other successfully,” explains Lisa Stevens, curator of primates. “It’s about habituating them to their environment. However, they can be very aggressive to their neighbors, so you would never put them in the same enclosure.”

If keepers observe any tension between animals in the same enclosure, they may place low-calorie snacks—such as browse or popcorn—throughout an enclosure as a distraction. To avoid any escalation, they refrain from putting out anything particularly savored by the primates.

Yet Zoo staff accept that a certain amount of aggression is inevitable. “Every social animal gets into a scuffle,” says Stevens. “Aggression and fighting are all part of the social lives of animals and primates. Whether its gorillas or gibbons, they have disputes that they need to resolve. We only intervene if there is injury.” It can at times even be socially detrimental to the animals for keepers to intervene in disagreements. “Often if you intervene, you delay the resolution of a conflict,” says Stevens.



MEGHAN MURPHY/NZP



Hormones CENTRAL

BY CRISTINA SANTIESTEVAN

Nicole Presley keeps a baby album on her computer. But her collection isn't personal. It's professional. It's filled with images of zoo babies from around the country. Her collection includes photos of giant anteaters, Asian elephants, and wild muskoxen. A pair of cheetah cubs should look awfully familiar to fans of the Smithsonian's National Zoo. "These are our guys," explains Presley.

Presley is the lab manager for the endocrinology lab, located at the Zoo's Smithsonian Conservation Biology Institute (SCBI) in Front Royal, Virginia. She is one of about a dozen staff members and interns who decipher biological samples for hormonal clues about zoo animals and their wild counterparts.

"Even though all we ever see is their poop or their urine or their serum, we feel like we're part of all that stuff," explains Janine Brown, who heads the endocrinology lab. Although they rarely interact directly with the Zoo's animals, the people who work in this lab play a vital role in understanding the biology of many of the world's most endangered species.

For scientists at the Zoo's endocrinology lab, hormones are clues to solving mysteries of animal life and reproduction.

Shedding Light on Pallas' Cats

"Hormones make the world go round," says Steve Monfort, director of SCBI and founder of the endocrinology lab. Testosterone, estrogen, norepinephrine (more commonly known as adrenaline), and insulin are just a few of the hormones that affect animal behavior, growth, reproduction, and health. Hormones influence every organ in the body and affect many biological processes,

such as heart rate, digestion, and pregnancy. Endocrinology is simply the study of hormones and the endocrine (hormone-regulating) system in the body.

SCBI endocrinologists seek to develop an improved understanding of the basic biology of species, often with a goal of enhancing fertility. For example, long-term studies of hormone patterns in giant pandas yielded new methods for pinpointing the precise



M. R. BOWLER/NATURE PICTURE LIBRARY

moment to artificially inseminate Mei Xiang, the Zoo's female giant panda.

Detailed studies of elephants' reproductive cycles led to the discovery of a unique hormone pattern—dual spikes in lutenizing hormone. It can be used to predict the best date for artificial insemination. If the procedure is successful, endocrinologists will also help predict the birth date. Pregnant elephants experience a dramatic drop in

progestagen levels three to five days before birth. Because elephants have a 22-month pregnancy, this hormonal clue is extremely helpful for keepers and veterinarians as they prepare for the birth.

Often, however, endocrinology helps solve a mystery. "You want offspring, and you're not getting them, and you don't know why," says Monfort. "The only thing you know is they are not reproducing. Are

they conceiving? Are they aborting? Is there a pregnancy loss along the way? Do they cycle normally?"

These are questions that hormones can help answer. Estrogen levels rise and fall as females cycle through normal periods of fertility. Progesterone indicates pregnancy in many species. Abnormal levels of these hormones may point to a non-cycling female or a pregnancy that has miscarried.



MEGAN MURPHY/NZP



Support Smithsonian Science!

Join the Conservation and Research Club to support the work of the endocrinology lab and other SCBI scientists. You'll get a free parking pass for the Autumn Conservation Festival. Learn more at fonz.org/join.htm.

Abnormal hormone levels don't provide a final answer, but they do offer essential clues for solving reproductive challenges with zoo animals. When the Cincinnati Zoo had trouble breeding its Pallas' cats—small, Siberian wildcats—a hormone analysis by the SCBI's endocrinology lab helped identify the problem. The cats' timing was off. The female Pallas' cats showed a clear spike in estrogen—an indication of breeding readiness—in November, and then a disorganized cluster of peaks later in February. In contrast, the male's androgen levels did not peak until late March. That means he was not producing large quantities of sperm when the females were most receptive. The Cincinnati cats were completely out of sync with one another and with Pallas' cats at other zoos, which consistently show peaking levels of estrogen and androgen in February.

Brown was puzzled by the findings. "I remember calling the zoo and talking to the guy and saying 'I don't understand this. Is there anything going on in November?' And he says 'Oh. Oh... We have a Festival of Lights, where we turn all the lights on in the zoo for several weeks in November.'" And that was the problem. In the wild, Pallas' cats begin breeding in early spring, as day length increases. The Cincinnati Zoo's lights were triggering an early breeding season in the females, but the festival did not last long enough to stimulate sperm production in the male. "They had been trying to breed their cats for years, and didn't have any luck," says Brown, "The following year they moved the cats to the other side of the zoo, away from the lights, and they had kittens for the first time."

These are the happy endings that Brown and others strive for at the Zoo's endocrinology lab. Although the animals cannot speak for themselves, their hormones can and often do. "Simple, serendipitous, accidental discovery. It completely changes how you manage this species," says Brown, of the Pallas' cats hormonal response to the Festival of Lights. "We would never have seen this without hormones."

The Smithsonian Conservation Biology Institute's endocrinology lab monitors the hormone levels of elephants across the country.

Hormone CENTRAL

Global Resource

In 1986, when Monfort founded the lab in an empty room of the newly constructed veterinary building on the Front Royal campus, endocrinology work was limited primarily to urine samples from primates. Biologists were only just beginning to discover the power of hormonal analysis in wild and zoo animals. In the 25 years since it was founded, the lab's work has expanded to include about 80 species of mammals and birds. Urine samples are still frequently used, but samples of feces,

blood, hair, and saliva are also important. And scientists no longer limit their analyses to reproductive hormones. Stress hormones, such as cortisol, are playing an increasingly important role in studies of zoo animals and their wild counterparts.

Despite the progress, there is still much to be learned. Monfort is quick to point out that the 80 or so species they've already studied are just a small fraction of the approximately 5,400 mammal species and 10,000 bird species in the world. "The work

that we're doing is very, very rudimentary still, even today."

"We know so little about the majority of animals on the planet," agrees Brown, who explains that increasing our knowledge often starts with questions that can be answered with hormonal analyses. "Is reproduction seasonal? What is the length of the estrous cycle? What is the length of a pregnancy?" By collecting and analyzing samples from a number of individuals, endocrinologists are able to begin answering these basic questions. From there, biologists build research projects, conservation initiatives, and captive-breeding programs. "We provide information that other people can build on," says Brown.

The endocrinology lab handles hormone analyses for both zoo-based and field-based research projects throughout the United States and around the world. It is the largest service laboratory for wildlife endocrinology in the world. Frozen samples—blood, urine, feces, saliva, or hair—are shipped overnight from all over the globe. One researcher ships muskox feces from the Arctic. The U.S. Fish and Wildlife Service ships elk feces from Yellowstone. And, in preparation for a recent Asian elephant birth, the Houston Zoo shipped samples from its expectant female every single day.

"It's a win-win for everyone," explains Brown. "The facilities get the information they need so that they can work on the management of their species. And then we get the benefit of having a huge database of reproductive information on a whole variety of species that we would never be able to get otherwise." That database ultimately helps answer questions about the care and reproduction of zoo animals. It was this kind of information gathering that allowed Brown to spot the unusual reproductive cycle in Cincinnati's Pallas' cats.

But the laboratory cannot possibly handle all the necessary hormone analyses for the world's zoos and wildlife research projects.



MEHGAN MURPHY/NZP



JESSIE COHEN/NZP



JESSIE COHEN/NZP

TOP: An international team works to artificially inseminate Mei Xiang
BOTTOM LEFT: Janine Brown takes part in the successful effort to artificially inseminate Shanthi, an Asian elephant.
BOTTOM RIGHT: Brown heads the endocrinology lab at SCBI Front Royal.



The endocrinology lab has helped unlock many of the mysteries surrounding the difficulty in breeding captive cheetahs. The Zoo's newest cheetah cubs were born in December 2010.

MEGHAN MURPHY/NZP

"We don't have the capacity to possibly do enough," says Monfort, who explains that there is just too much left to learn—too many species that haven't been studied, too many questions that haven't been answered. "While we have a big lab, it's not enough. There ought to be a hundred labs like us to have a shot at making a dent in what we don't know."

The world may be a long way from having a hundred labs like SCBI's, but Brown and her colleagues are actively training the next generation of wildlife endocrinologists. The laboratory hosts both undergraduate and graduate-level interns, as well as pre-veterinary students. In a typical semester, about six to eight students walk these halls and learn from SCBI's wildlife endocrinology staff.

All told, the lab is easily Earth's largest training facility for wildlife endocrinology. Beyond training individuals, the Zoo also helps launch endocrinology labs in other countries: three labs in Thailand, one in Australia, one in New Zealand and one in

Sri Lanka. "We've got people everywhere," says Brown, who estimates that hundreds of students have passed through the Zoo's endocrinology lab. "I think it's because the atmosphere here is to give back. We put as much effort into giving out as we do into doing our own internal thing."

The "Happiness" Hormone

The cheetah cubs on Presley's computer are an example of another mystery solved by the endocrinology lab. In 1999, the Zoo initiated a breeding program with the cheetahs on display in D.C. The cats were healthy, and the exhibit was specially designed as a breeding facility. But no cubs arrived. Why not?

Endocrinology provided the first clue. The female cats were "flat-liners," meaning that their estrogen levels were not peaking in the regular cycle that is normal for cheetahs. Something had shut down their estrogen production. As a result, the female cheetahs' ovaries were inactive. The endocrinology lab results revealed the problem—non-cycling females—but not the cause.

The answer became clearer when Brown compared hormone analyses of solitary female cheetahs with group-living females. Those females who were living with other female cheetahs weren't cycling. But the solitary females were. A review of wild cheetah behavior confirmed that female cheetahs are solitary creatures. They interact with others of their kind only when breeding or raising their cubs. When housed with other females in zoos, the cheetahs stopped reproducing. Once separated, the cats began to cycle again. And zoos began celebrating cheetah births.

Brown hopes that similar discoveries await elephants in the next few years. The National Zoo is one of seven partners collaborating in a three-year study on elephant welfare. It will look at nearly 290 Asian and African elephants in approximately 70 zoos throughout the United States. The SCBI endocrinology lab will be analyzing blood, feces, and saliva for hormonal clues into elephant behavior, growth, health, and reproduction.

The lab will also attempt to measure elephants' "happiness." Endocrinologists know that hormones such as oxytocin and prolactin are indicators of well-being or contentedness in humans. This project will be the very first time that anyone has attempted to measure these happiness hormones in wildlife or zoo animals. The results of these tests will help identify who is "happy" among the American elephant population. This will provide vital clues for biologists and zoo keepers as they strive to develop new policies and facilities for elephants around the world.

"We think that this welfare project could be a model for any number of other species," says Brown, who is excited about the broad scope of the study. No previous study has looked so holistically at the well-being of a single species. Similar large-scale welfare projects may be launched for other species in the coming years. The results could change—for the better—how zoos care for their animals. Ultimately, studies such as these could also give Presley more photos for her digital album of zoo babies. **SZ**

—Freelance writer CRISTINA SANTIESTEVAN last wrote about the Zoo's pathology lab.

ZOOFARI
Luster and Logistics
BY BRITTANY GRAYSON



MEHGAN MURPHY/NZP



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The Zoo's premier fundraiser is an enchanted evening of sumptuous food, fine wine—and meticulous planning.



MEGHAN MURPHY/NZP



MEGHAN MURPHY/NZP

Anacondas eat. Zebras eat. And so does just about every animal in between.

Accommodating those varied appetites is a full-time job at the Smithsonian's National Zoo, whose commissary serves roughly 2,000 meals a day to representatives of 400 species.

That's not all the eating that goes on here, though. Guests bring appetites of their own, making their hungry way through hamburgers, hot dogs, sandwiches, salads, and snacks. No doubt about it: Food is a key part of Zoo life—day in, day out.

Yet there's one night in the Zoo year when food truly comes into focus, when the offerings are abundant enough, exquisite enough, varied enough to sate even *Oliver Twist*. That's the third Thursday in May, when ZooFari turns the Zoo into a diner's paradise.



JESSIE COHEN/NZP

DID YOU KNOW

When Clint Fields was executive director of FONZ, he studied a hundred years' worth of weather records before selecting the third Thursday in May as the spring day least likely to be rainy. And indeed, rain has struck ZooFari only once in anyone's memory, and the event went on successfully.



MEGHAN MURPHY/NZP



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Join us on May 19 for an extraordinary evening. You can sample food from more than a hundred top D.C. restaurants, sip wine from distinguished vintners, enjoy live music, and bid on fabulous auction items—all while exploring the Zoo.

More than exploring, actually. Supporting. ZooFari is Friends of the National Zoo's top fundraiser, critical to the financial health of both FONZ and the Zoo. Our 2011 goal is to raise more than \$400,000, which will provide vital support for animal care, conservation biology, educational initiatives, and more. So grab your foodiest friends and head to fonz.org/zooafari.htm to treat yourself to a great night for a great cause.

A History of Hospitality

ZooFari began almost three decades ago as a small catered dinner for FONZ members and other supporters. "It used to be more of a traditional Washington, D.C., fundraiser,"

recalls Pat Petrella, FONZ's director of corporate and special events. Guests donned black tie, dined in a tent, and danced to the music of well-known bands.

While elegant, the dances never raised the kind of funds FONZ needed. So Clint Fields, then the executive director, spurred his team to think creatively. "We thought: We're the Zoo," Petrella remembers. "We need to have more fun and mix it up. We need to move around more."

The result was a complete overhaul. Out went the single, catered menu. In came an array of restaurants offering samples of their wares. Out went the tent in Parking Lot B. In came food stations all over the Zoo, to encourage walking and exploration.

It worked. The newly revamped ZooFari was a hit and has remained one. After years of seeking out restaurants and wineries to participate, ZooFari has become a coveted event for restaurants. "Now our dilemma is that we're having to

turn restaurants away," Petrella says. Of course, that's not a bad problem to have for a foodie event.

The abundance of offerings leads to another not-so-bad problem, according to executive director Bob Lamb. "The main problem everyone always tells me about is sampling as much as they can," he says. "Keeping their appetite throughout the evening seems to be their biggest challenge."

ZooFari continues to evolve. Lamb explains, "While we still follow the basic inspiration of connecting our guests with some of the very best food and wine in the D.C. area, we try to add a little something extra and create some new excitement each year. Last year we added a cake-decorating contest and a celebrity chef judging event. This year we're giving people a new opportunity to have a special animal experience at ZooFari."

ZooFari's evolution involves more than just increasing options and special features.

Over the years, the ZooFari team has striven to reduce the event's environmental footprint. Recently, that has meant replacing plastic trays and flatware with biodegradable versions. It has also meant stocking only 100 percent recycled napkins. Every change aims to improve ZooFari's impact on the wider, and wilder, world.

Feeding Thousands of Primates

At the heart of each year's ZooFari planning lies the challenge of putting together just the right mix of restaurants. That task falls to Pam Bucklinger and Sarah Demarest, who begin recruiting restaurants each January. Every year, more restaurants want to take part than can fit, so the pair tries to make selections based on which restaurants will make the event the most memorable and special for the guests.

"We aim for high-end restaurants that people may usually only go out to on special occasions. We want to bring them all together for one amazing night," Demarest explains. Bucklinger adds, "We look for trendy new hot spots people are talking about, celebrity chefs, and restaurants with sustainable menus. We give special recognition to restaurants that bring sustainable menu options, and it's a great way to connect restaurants to the Zoo's conservation efforts."

Participating in ZooFari is not a small task for the restaurants. Each has to provide at least 2,000 tastings of food, and restaurants send up to five staff members to run and decorate their tables. Bucklinger and Demarest, meanwhile, work with FONZ's food-service and events teams to figure out which restaurants will need power, who will need ice or a grill, who has to bring in a truck, and who may need help if their plans change at the last minute. Turning an acres-large site into what is, effectively, one enormous kitchen is no mean feat.

For all the hard work and stress, however, something interesting happens each year when Lamb walks the event site to thank the restaurants and vineyards personally for donating their time, services, and cuisine. "I start to thank them," he says, "but they interrupt to thank me. They say it's their favorite event of the year. They love the chance to get out of the hot kitchen on a beautiful spring night. They

connect with their customers, friends, and colleagues. They appreciate how helpful our staff is, how beautiful the Zoo is, and how fantastic our guests are. They tell me they look forward to ZooFari every year."

The Annual Army

Making ZooFari unfold as seamlessly as it does takes a small, annual army drawn from all corners of the Zoo and coordinated by Petrella's team of expert event planners. It includes carpenters, electricians, and people prepared to haul large amounts of equipment and supplies from point A to point Z, and all the points in between.

Preparations begin up to a month before ZooFari as everyone orders the supplies ZooFari will require: wood, temporary fencing, electrical wiring, outlets, lights, and fuses. Once carpenters have the materials, they start building entryways and stages, putting up temporary fences, and looking at the electrical layout of the site to ensure safety and to see if all the restaurants will have what they need. They also have to plan ahead for the inevitable last-minute changes and emergencies.

The week of the event, teams begin setting up tables, chairs, coat racks, lights,



NATIONAL ZOOLOGICAL PARK

Each year ZooFari raises several hundred thousand dollars, which support animal care, conservation biology, educational initiatives, and more.

The Power of Sponsorship

ZooFari couldn't happen without the labors of dedicated staff and loyal volunteers. It also takes the support of another key group: corporate sponsors. What few people realize is that fundraising events such as ZooFari are almost entirely dependent on sponsors. Ticket sales alone very often cannot recoup the cost of the event, and they certainly can't raise the amounts of money that ZooFari typically generates for the Zoo.

Sponsor companies support ZooFari by sponsoring or purchasing a table or by donating money, goods, or services to the event. According to Jackie Vinick, FONZ's corporate partnerships and promotions manager, there are some companies that have supported the Zoo and sponsored ZooFari for years. They include Capital One Bank, the Coca-Cola Company, Geico, and Rosenthal Jaguar/Land Rover. And then there are new companies that come on board each year, excited to be allied with the Zoo and its conservation efforts.

Vinick explains that it can take years to build sponsor relationships. "Lots of cultivation, patience, and creativity go into building corporate partnerships," she says. "It's not just about a company putting its logo on something – it's about providing a venue for a company to reach their audience in a unique way, with one-of-a-kind branding and messaging opportunities."

If your company would like to sponsor ZooFari or another Zoo event, contact Jackie Vinick at vinickj@si.edu.



MEHGAN MURPHY/NZP

electrical cords, trash cans, benches, tents, and signs. This setup continues until the very night of the gala. And, as facilities manager Anthony Robinson reports, the oddest emergencies can get in the way.

"One time when we got to the trailer where the tables were stored, and we were ambushed by a large colony of bees," Robinson recalls. "They chased us out. Somehow, no one got stung. There were five of us in a race for the door. But we still had to get the tables out. The event was happening regardless of the bees. The pest-control people sprayed something to calm them down, and we got the tables out. Needless to say, we were extra cautious after that inside that trailer."

Zoo and FONZ staff are not the only ones who work tirelessly up to and on the night of ZooFari. The event also requires some 150 volunteers. They help set up chairs and tables, and hang signs on the tents. A proficient team of table-skirt experts goes around and dresses all the tables. Hours before the event, athletic volunteers haul ice, beer, wine, and cases upon cases of soda to the bars scattered throughout the event site.

Volunteers also help the night of ZooFari—tending bar, monitoring tables, greeting guests, checking IDs, taking tickets, and helping out with the auction, raffles, and games. According to Helen

Moore, a FONZ event planner, "The event could not happen without the support of our volunteers."

The biggest challenge is that almost all of this preparation has to go on while the Zoo is open. The Zoo doesn't close to guests until a few hours before ZooFari begins. So everyone has to work around families seeing the Zoo, tourists on vacation, flocks of schoolchildren, and inter-

ested and interfering guests of all stripes. "We have thousands of kids here the whole time," Robinson says. "They tend to be more interested in what we are doing than in the animals."

Stephen Micciche, who supervises the carpentry, paint, and masonry shops, marvels at how thousands of moving parts come together each year to form a smooth, cohesive, efficient event. "It's funny to me now," he says, "but at the time of the event, when there are people running everywhere solving issues, dozens of vendors setting up and everything is chaos, I find it amazing that it all comes together. You have to see it to believe it," He adds wryly, "I think it's odd how it seems to rain the night after the event or while we are picking up the next day. But we're all in this together."

An Auction for Everyone

Don't live near D.C.? You can still take part in ZooFari! A large portion of the funds raised by the event comes from an online auction. Last year the online auction brought in \$62,000. This year it runs from May 9 through May 29, and anyone can bid.

Auction items include works of art by the Zoo's animal artists, dozens of special behind-the-scenes tours of both Rock Creek and Front Royal, tickets to sporting events, vacations, and exclusive opportunities for some one-on-one time with the Zoo's animal staff and scientists.

Visit biddingforgood.com/fonz to check out the online auction.

Enchanted Evening

At last, everything is in place. Tables are set, linens are pressed, signs are hung, entertainers and restaurants are in place. Curators and keepers stand ready to show off their charges. And then the guests arrive. Staff and volunteers greet them, taking tickets and guiding them into the event.

Even now, however, the event's logistical demands do not lessen. Much of the work falls to FONZ's guest services team,



MEHGAN MURPHY/NZP



NATIONAL ZOOLOGICAL PARK



MEHGAN MURPHY/NZP

WORKING A chef demonstrates her skills. **IDEAS** ZooFari 2010 included a cake-decorating contest.

headed by Rafford Seymour. One of the biggest challenges, he says, is keeping the event site clean. “We want the event to look all evening as nice as it did when it just started.” That goal requires a team of almost 50, including people drafted from other areas of the Zoo. They patrol constantly, cleaning up plates and glasses.

“The backbreaker,” according to Seymour, is the cleanup at the end of the

night. The event goes until 9:30, and, as at any good party, it takes a while for the last few guests to straggle out to their cars. Meanwhile, though, Seymour’s team has shifted into high gear.

“The amazing part,” he says, “is how we take down such an elaborate event. The next day, you wouldn’t even know we had a huge party. The next morning, the only thing left is the tents.”

Actually, the tents are not quite the only thing left. There are also the guests’ memories of a polished, perfect evening. And then there are the funds raised by all this effort—a lustrous contribution to FONZ, the Zoo, and our shared work of restoring an endangered natural world.

—BRITTANY GRAYSON *is a web editor and science writer for Friends of the National Zoo.*

run. climb. discover. giggle. play.
sense. romp. create. learn. smile.
bounce. explore. bond. conserve.
jump. marvel. see. connect. revel.
support. amuse. party. wonder.
experience. imagine. grin. squeal.
enjoy. frolic. dance. invite. sing.
laugh. eat. create. **GuppyGala**



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Friday, May 13, 2011

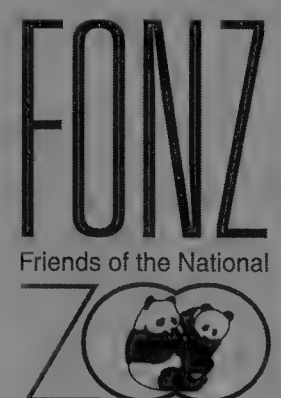
6-8:30 p.m. at the National Zoo

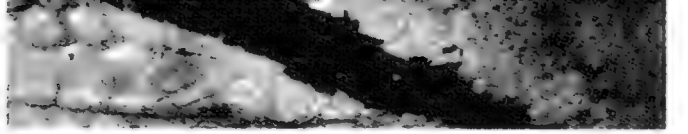
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ANIMALIA

BY DEVIN MURPHY

DID YOU KNOW? Musical Mates

White-cheeked gibbons are not exactly the quietest animals at the Zoo. Native to the jungles of Southeast Asia, gibbons are small apes with big voices. Their vocalizations, called songs, can be heard two to three miles away.

Gibbons mate for life. Males and females sing to each other to attract a mate. After two gibbons have found each other, they sing a duet to announce they are a pair. They form a family with any offspring they have. The family is territorial and will call to let other animals to warn them away from the gibbons' territory.

Gibbons' calls or songs can also reveal what species they are. Different species of gibbons have different songs.



MARK CARWARDINE/NATURE PICTURE LIBRARY

FACT OR FICTION?

A Bird Slows Its Heart Rate to Save Energy

FACT. Thermal cameras have revealed a survival secret of the Costa's hummingbird: It conserves energy at night by slowing its heart rate. The tiny bird's heart can beat anywhere from 500 to 900 times per minute while it is awake. When the bird settles down to sleep, however, its heart beats as few as 50 times per minute. Slowing down its heart rate lowers the bird's body temperature, which means that the bird does not have to work as hard to stay warm. This helps the Costa's hummingbird cope with cold desert nights in the Southwest and Mexico.

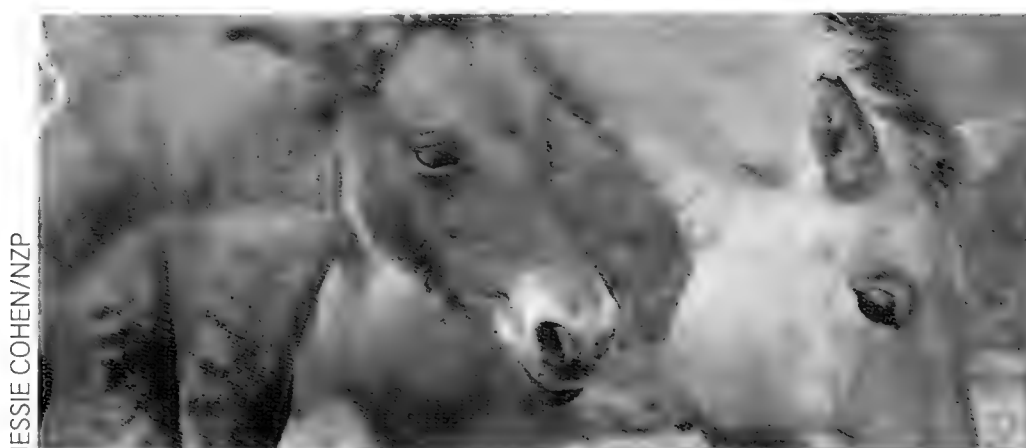


JESSIE COHEN/NZP

SUPERLATIVE

The green anaconda is the largest snake on the planet. It can weigh up to 550 pounds—more than a fully grown male giant panda. That enormous weight is spread out over a 29-foot-long body that is 12 inches in diameter at its thickest part.

Green anacondas need to eat mighty meals to support such girth. There are a variety of animals on the menu for them: turtles, deer, birds, caimans, wild pigs, and even jaguars. The snake is a constrictor and kills its prey by squeezing it. Then it swallows the animal whole. Depending on the size of its prey, a green anaconda may not need to eat again for a while—for weeks or perhaps even months.



JESSIE COHEN/NZP

Where in the Zoo?

Zoos helped bring this animal back from the edge of extinction. What is it? Find out at nationalzoo.si.edu/goto/whereinthezoo.



FIERCE FISH

BY PAMELA
BUCKLINGER

Piranhas are little fish with big appetites.

SMALL BUT DEADLY »

Piranhas are small, about 6 to 12 inches long. But they have a big reputation. With mouths full of razor-sharp teeth and a taste for blood, piranhas don't have many friends. In stories, they are often portrayed as man-eaters. Is this fact or fiction? Read on and learn more.

BITE YOUR TONGUE! » Piranhas rarely attack humans. They'd rather eat wounded or sick animals. That may sound gross, but it helps stop the spread of disease. (Their prey's ailments seem not to affect piranhas.) Piranhas have taste buds all over their bodies, so they know when something tasty swims by.

BACK IN SCHOOL » Piranhas aren't terribly deadly on their own. The real danger comes when they form a school, or large group. By swimming together, they look like one big fish. That scares away many predators. When piranhas are ready to chow down, the school attacks as a team. The fish can tear their meal to pieces in seconds.

CAN THE TOOTH FAIRY SWIM? » If piranhas got money every time they lost a tooth, they would be rich! Humans grow just baby teeth and adult teeth. Piranhas, though, grow a new tooth every time they lose one. These strong new teeth help them bite, bite, bite!

AT THE ZOO » You don't need to travel to South America to see piranhas up close. The Zoo's Amazonia exhibit is home to red-bellied piranhas.

CHEW ON THIS!

- About 20 different kinds of piranhas live throughout the Amazon Basin.
- Piranhas may sound scary to you, but South Americans swim with them every day. Attacks are extremely rare.
- During the dry season, however, piranha food is scarce, and the fish become aggressive. At that time of year, you should stick to the pool!
- Red-bellied piranhas really do have red bellies. They also have red chins and fins.
- Piranhas' teeth are sharp enough to bite through steel fishhooks.
- South Americans use piranha teeth to make tools and weapons.

Dive Into Amazonia!



S	L	O	T	H	I	F	T	E	T
I	T	A	N	C	G	I	R	R	O
P	O	I	A	E	O	T	E	O	H
M	R	P	N	G	U	P	P	Y	G
O	T	L	U	G	F	E	S	I	H
N	O	L	T	O	R	D	O	C	S
K	I	E	N	T	T	A	F	A	I
E	S	G	A	F	H	S	Y	A	F
Y	E	H	R	P	A	R	T	E	T
L	D	I	A	L	U	T	A	N	A
E	G	A	T	A	N	A	M	D	C
C	A	R	D	I	N	A	L	F	D

What lives in Amazonia beside piranhas? Find out by spotting names hidden in the puzzle above. Answers go forward, backward, up, down, and diagonally.

ANSWERS:

cardinal, catfish, frog, guppy, monkey, sloth, stingray, tetra, tortoise



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fonz.org

Membership
Information
202.633.2922

Special Events
202.633.4470

Development Office
202.633.3033

Camps and Classes
202.633.4470

Volunteer Services
202.633.3025

Comments? Questions?

Please email us at
member@fonz.org

Not a FONZ
member yet?

Call 202.633.3034
or go to
fonz.org/join.htm

FONZ Call for Board Nominations

The Friends of the National Zoo Board of Directors is now soliciting nominations from the membership for the 2012 FONZ Board. The volunteer Board plays an essential role in shaping FONZ's future direction, and we rely on our members to recommend individuals with the appropriate skills, talents, and leadership abilities to guide our efforts to connect people with wildlife and to support the important work of the Smithsonian's National Zoo.

Please assist us by nominating individuals (or yourself) who you believe would be interested in this very special service opportunity. Nominations will be reviewed by the FONZ Board Oversight and Nominating Committee, and the names of the selected nominees will be forwarded to the FONZ membership for election consideration. At this time, we expect that there may be two or three vacancies on the Board, which currently has 23 members.

The criteria by which potential candidates are considered and judged include the following:

- Strong interest in supporting FONZ's visitor-experience mission. This includes FONZ's membership, education, volunteer training, special events, concessions, and website and publication programs;
- Fundraising or friendraising ability to advance FONZ and the National Zoo;
- Demonstrated leadership and management abilities;
- Demonstrated experience and/or skills that would directly benefit FONZ leadership—both staff and Board—and the FONZ membership; and
- Willingness and ability to commit significant time to FONZ's scope of work and FONZ Board activities.

Much of the FONZ Board's work is accomplished through three standing committees (Executive, Finance and Audit, and Board Oversight and Nominating) as well as task forces and other strategic committees. All Board members are expected to serve and fully participate on committees and are expected to attend one or more monthly meetings or functions.

Nominations for the FONZ Board of Directors are only accepted from current, dues-paying members, must be submitted on the official FONZ nomination form, and must include a comprehensive biography of the nominee. To receive an official nomination form and/or to discuss Board service with me or a member of the Board, please call 202.633.4379. **The deadline for submitting nominations for the 2012 FONZ Board of Directors is July 8, 2011.**

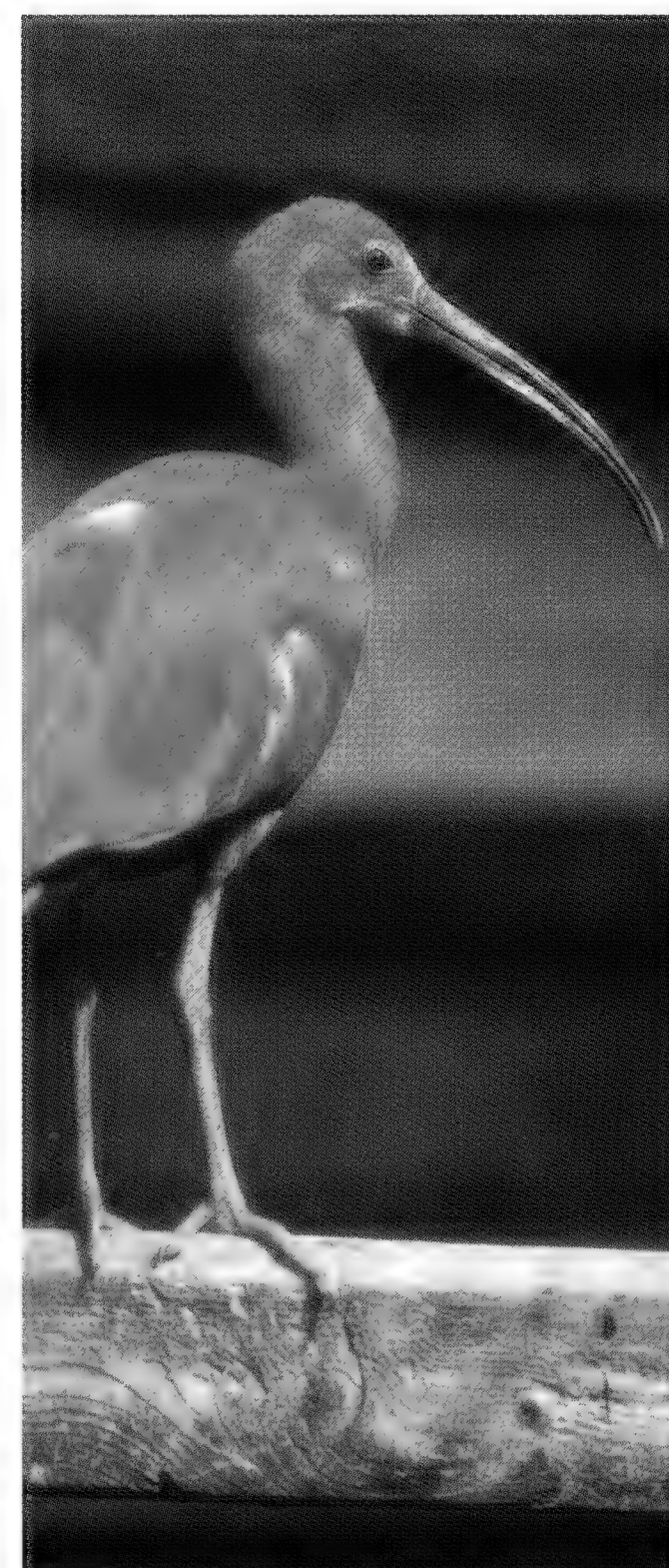
Andrew Shore
President, FONZ Board of Directors

Learn at the Zoo!

FONZ classes give children a deeper understanding of animals, their behaviors, and their habitats. Children's classes are open to FONZ members at the household level or higher.

Varying somewhat in structure, classes generally include hands-on activities, crafts, and time in the Zoo. Please note that classes do not include behind-the-scenes visits or direct contact between children and animals. Classes meet in the Visitor Center unless otherwise noted.

Register Online at
fonz.org/classes.htm.



JESSIE COHEN/ NZP

PRESCHOOL CLASSES

These programs invite adults and children to discover the Zoo together. All children must be accompanied by an adult. For everyone's safety and enjoyment, unregistered children and siblings may not attend—except for infants who do not yet crawl.

AROUND THE WORLD IN FIVE DAYS

Tour the Zoo and explore the world one continent at a time. Each week, we'll travel somewhere new and learn about the animals and culture of the area through songs, crafts, and activities. Pack your suitcase and grab your passport. You don't want to miss this flight!

AGES: 2-3

DATES: May 1, 8, 15, 22, 29

TIME: 10-11:30 a.m.

FEE: \$25 each or \$110 for all five

May 1: South America —

Journey into the shadowy world of the rainforest and meet the diverse, fascinating creatures that call it home.

May 8: Australia — G'day, mate! We're heading down under and exploring the Great Barrier Reef. Just keep swimming to this class!

May 15: Asia — Join us as we hike along Asia Trail and discover the cool creatures that live there. They include bears, otters, and the Zoo's superstar giant pandas.

May 22: Europe — Head across the pond to learn about some of our fabulous, feathered friends.

May 29: North America — Welcome home! Your backyard Zoo is waiting for you to explore.



JESSIE COHEN/NZP

DR. ZOO-EUSS

Turtles and elephants. Big tigers too! Where can you find them? The National Zoo! You're sure to have a fabulous time—making crafts, enjoying rhyme. Then you'll go and have a look at creatures from Dr. Seuss books.

AGES: 2-3

DATES: June 5

TIME: 10-11:30 a.m.

FEE: \$25

CHILDREN'S CLASSES

Parents are not encouraged to stay with the class, but may if they wish (for no charge)

WIZARD OF THE NATIONAL ZOO

Lions and tigers and bears—oh my! You'll need to be brave for this one. So find your courage, have a heart, and engage your brain as we follow the red brick road to some of our favorite animals.

AGES: 4-6

DATES: May 7, 14, 28

TIME: 10 a.m.-12 p.m.

FEE: \$28 each or
\$75 for all three

FONZ CLASSES

HOMESCHOOL CLASSES

Attention all home educators! Contact us at fonz_programs@si.edu if you are interested in setting up an educational program that can meet your specific needs.

FACT OR FICTION

Many of the world's folktales make astute observations of animals, with inventive explanations of how they came to look or behave the way they do. In this series, we'll journey to a different continent each week to read some of the stories, and learn the facts, about the animals that live there.

AGES: 5-7

DATES: May 18, 25; June 1, 8, 15

TIME: 10:30 a.m.-12:30 p.m.

FEE: \$140

KUNG ZOO PANDA

Help kick extinction! Become a part of the Furious Five and earn a black belt in conservation. This class is sure to be a knockout.

AGES: 4-6

DATES: June 4

TIME: 10 a.m.-12 p.m.

FEE: \$28



MEHGAN MURPHY/NZP

Looking for a place to eat? Consider patronizing one of the fine restaurants that supports the Zoo by taking part in ZooFari. You can find about a hundred eateries, from Addie's to Zentan, at Fonz.org/ZooFariRestaurants.htm. Please be sure to thank them for supporting the Zoo's work.



MEHGAN MURPHY/NZP

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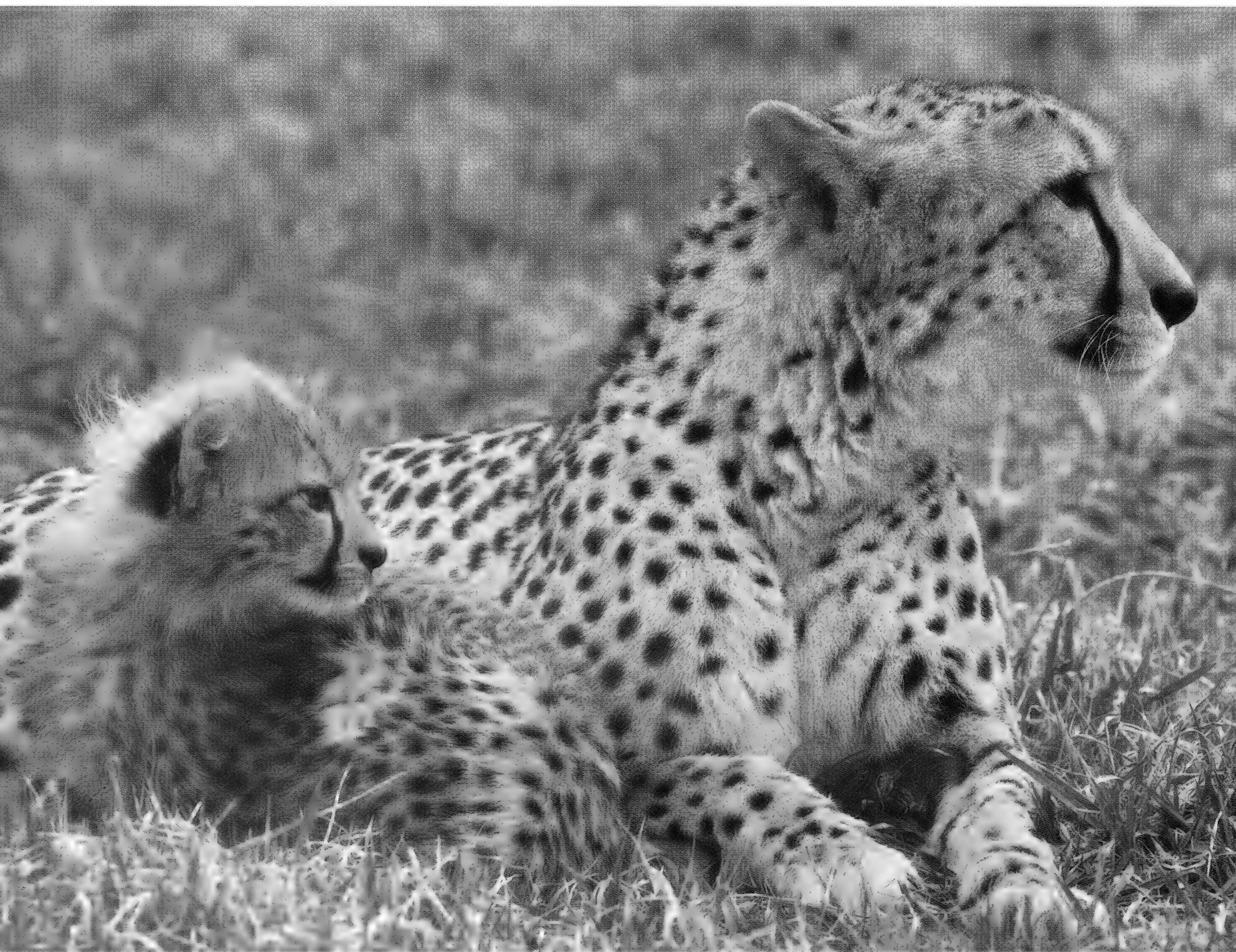
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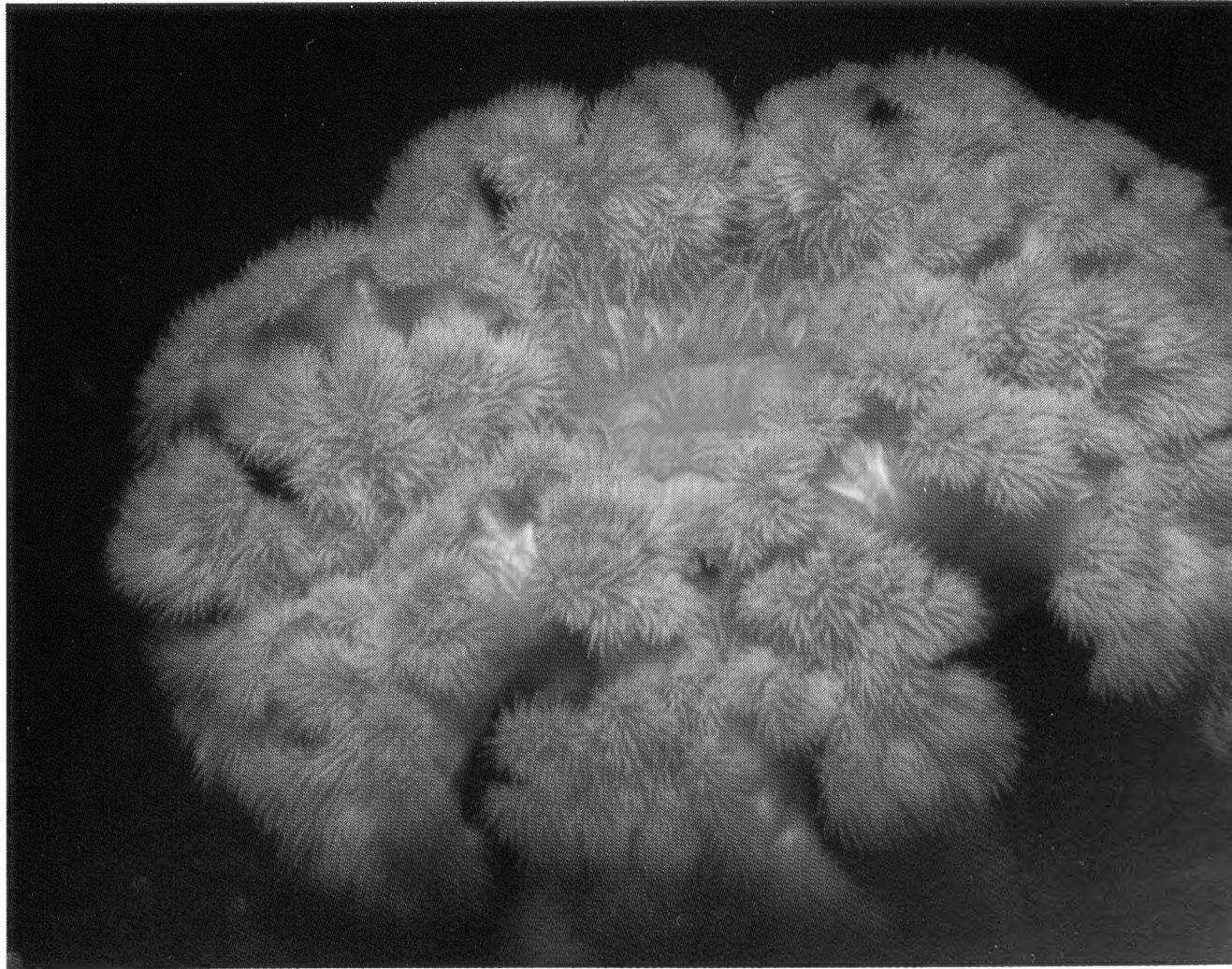
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This listing reflects
contributions from January 1
to December 31, 2010.



JESSIE COHEN/NZP



JENNIFER LOCKRIDGE

King or Toy?

Luke, our male lion, may be the king of the beasts, but to his offspring he's more of a giant plaything. The seven cubs love running around him and even jumping on him. Now and then, Luke growls at the cubs, but he mostly endures their playing with a sort of resigned grace, as when Lusaka grabbed his tail in her mouth—a moment captured by FONZ member Jen Lockridge.

Technical Notes — CAMERA: Nikon D40; FOCAL LENGTH: 300 mm

Smithsonian Zoogoer

welcomes FONZ members' submissions of photos taken at the Zoo. Please send photos to **Zoogoer@si.edu**. We will contact you if we are able to use your picture for the Zoo View page.

THE FUNDRAISER YOU CAN REALLY SINK YOUR TEETH INTO

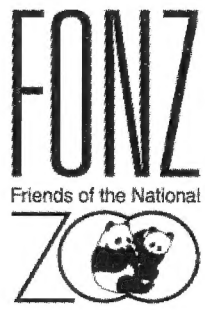


Don't miss ZooFari at the Smithsonian's National Zoo on May 19.

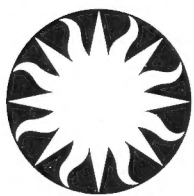
Indulge in great food from over 100 DC-area restaurants and vintners all while supporting conservation programs at the National Zoo. Join us for ZooFari, an extravaganza of food and wine, and help take a bite out of conservation. Find out more at fonz.org/zoofari.htm.

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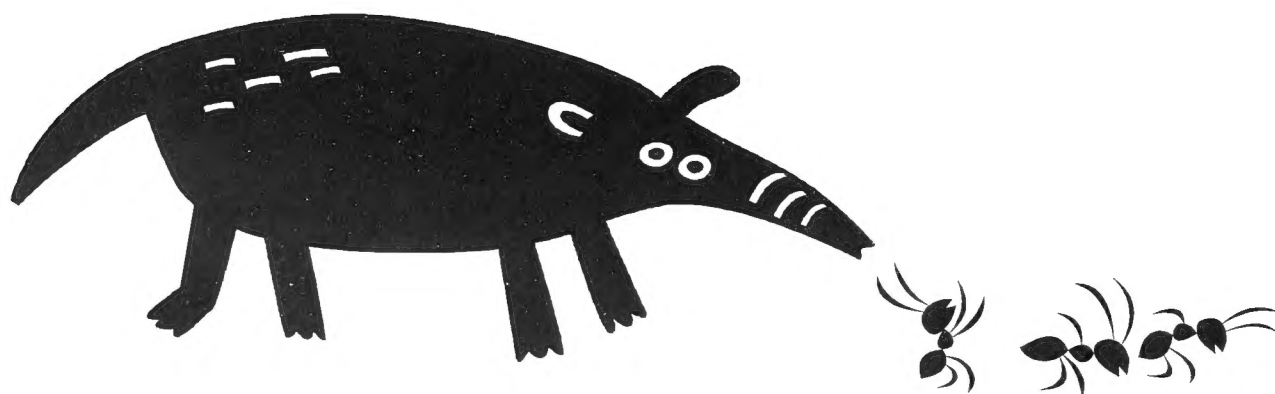
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Smithsonian
National Zoological Park

Thank you for joining FONZ.

Your membership supports animal care,
science, conservation, and more.



If you bring him home,
you'll never have to feed him.

He's already stuffed.

Take home an animal that you won't ever have to feed or clean up after. Right now, we're offering a special anteater Adopt a Species package to celebrate the birth of a giant anteater. For just \$65, you'll get an anteater plush animal, photo, fact sheet, and personalized adopt certificate. All proceeds support the Zoo's animal and conservation programs. Giant anteaters eat up to 30,000 ants a day. But this one won't require any. www.fonz.org/adopt.htm

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a species